Training Manual

SCC Line
SelfCooking Center - Combi Master

Edition 09-2007

Training Manual
SCC Line
Edition 09 - 2007

General hints:

Isolate the appliance from mains supply before opening the appliance

When working with chemicals, i.e. aggressive cleaning materials always wear protective clothing, goggles and gloves!

After maintenance / repair the appliance must be checked for electric safety in accordance with your national, state and local requirements!

Whenever working on any gas component like:
Gas valve, gas blower and / or changing connected type of gas a detailed flue gas analysis MUST be done using adequate CO and CO2 measuring equipment! This shall ONLY be done by trained technicians!
Always check appliance for possible gas leakages!

Part1: CM Technology

CM Technique from 04 - 2004 4
Water level control Steam Generator 6
RATIONAL SC Automatic 7
Steam Control CM 8
Additionaly functions CM from 04 - 2004 10
CM PCB (42.00.004) 12
Motor for CM 40.00.274 13
CM - Sequence of events 14
Service level CM from 04 - 2004 19
- Service level: dP -- Diagnostic Program 20
- Service Level: ER -- Error code history 21
- Failure Codes CM „ER“ 22
- Service Level: rt -- Running Time 23
- Service level: SE -- Basic settings 24
- Service level: SE -- Function test 26

CM Gas from 04 - 2004 28
- Identification of the different gas burners / Gas blowers: 29
- Sequence of events of Burner and Ignition control 30
- Changing installation altitude: CM gas 32
- Checking of dyn. input gas flow pressure 33
- Flue gas analysis 34
- Changing Gas blower speed 37
- Burner adjustment 38

Part2: SCC Technology

SCC Control Panel 39
Display up to Software version SCC 01-07-12 40
Display since Software version SCC 02-01-01 42
Display Programming / CleanJet SCC 02-01-01 44
SCC Electric from 04-2004 46
SCC Operator pcb (42.00.002) 48
I/O PCB SCC (40.00.049) 49
Motor for CM 40.00.274 50
Humidity control SCC 51
Service level SCC 60
- SCC Diagnostic Mode 61
- SCC Running Times 65
- Basic Settings 69
- RESET 73
- Function test 74

Download of unit service data 78
HACCP 82
Service messages 84
Calibration SCC 88
Control Drain Valve 54.00.357 90

SCC Gas
- SCC Gas from 04-2004 92
- Identification of the different gas burners / Gas blowers: 94
- Sequence of events of Burner and ignition control 95
- Gas conversion : SCC Gas 96
- Adjustment of installation altitude above sea level 97
- Flue gas analysis: SCC gas 98
- Burner adjustment 100
- Changing gas blower speed SCC Gas 101

Part3: Common information

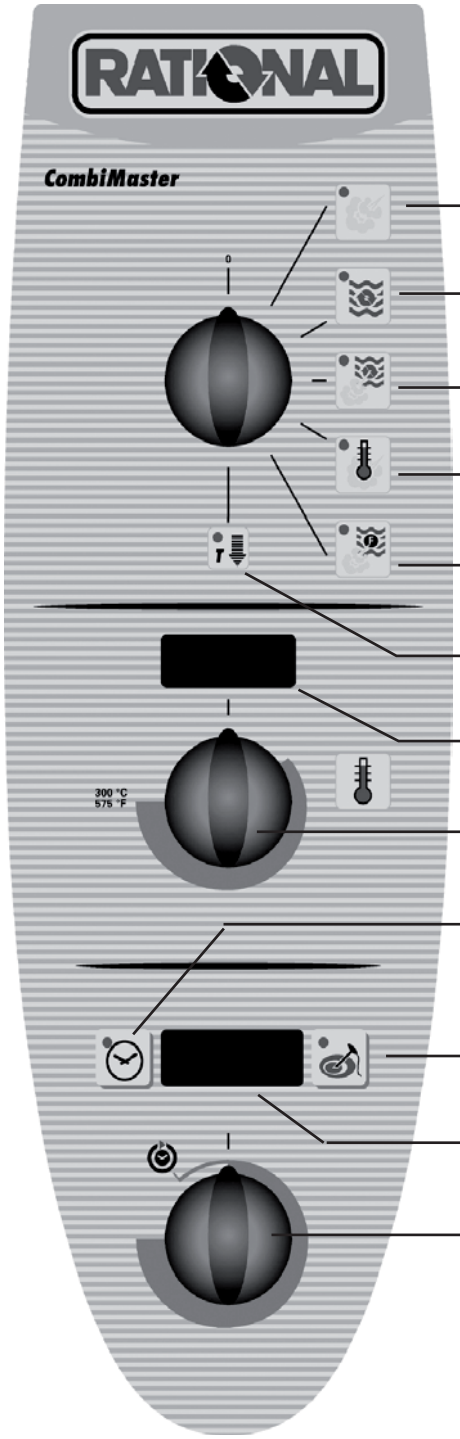
Flash SCC Software 102
Software update CM units 104
User instruction electrical descaler pump 108
RATIONAL Commissioning SCC-CM 110
Preventative maintenance SCC / CM 114
Water info 118

Part4: Fault list SCC - CM 120

Part5: Circuit diagram (Training version 3NAC 400V 138

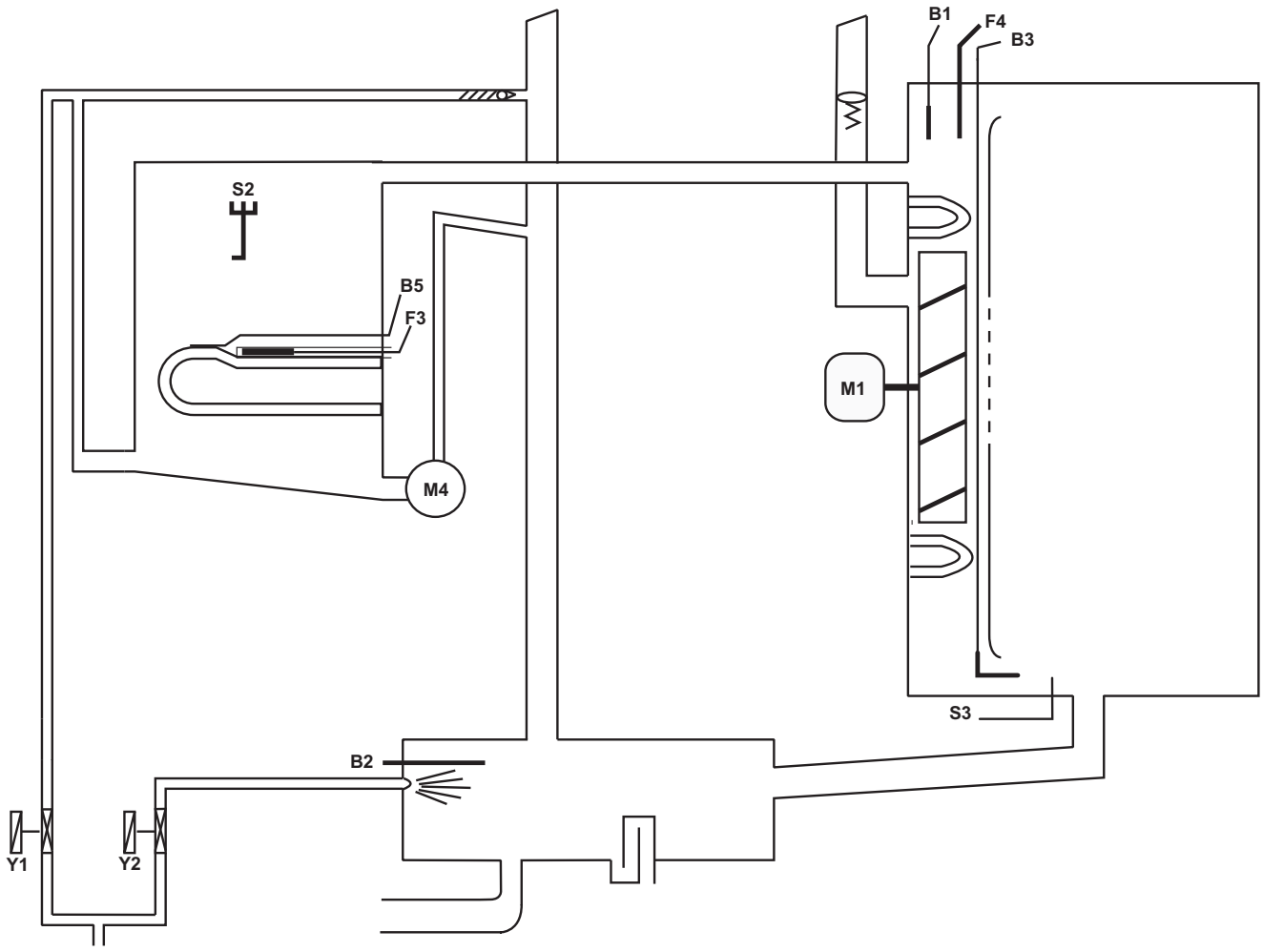
SCC Service reference 192

CM Technique from 04 - 2004



- Steam
- Hot Air
- Combi Steam
- Low Temperature Steam
- Finishing
- Cool Down
- Cabinet temperature display
- Cabinet temperature setting
- Timer
- Core temperature
- Time - Core temperature display
- Time - Core temperature setting

CM Technique from 04 - 2004

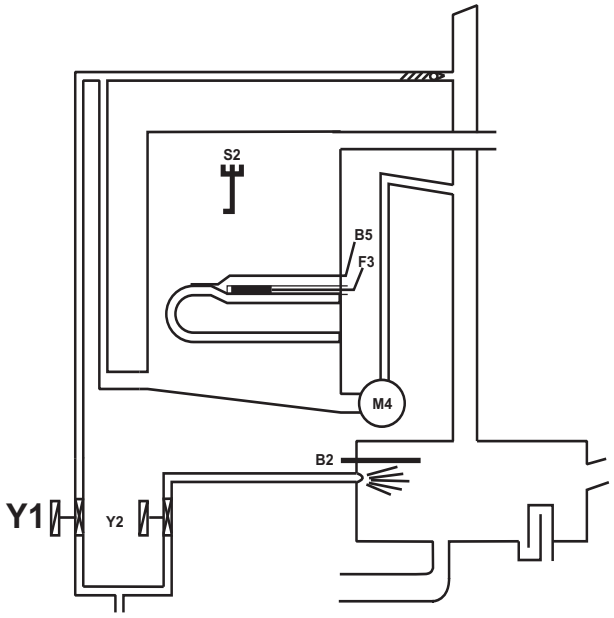


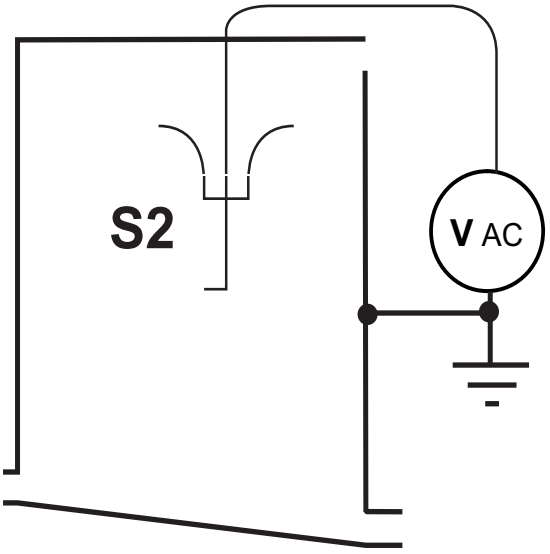
B1	Thermocouple cabinet
B2	Thermocouple quenching / Steam control
B3	Thermocouple core temperature
B5	Thermocouple steam generator (preheating, 180°C (356°F) max)
F3	Safety temperature limiter steam generator 160°C
F4	Safety temperature limiter cabinet 360°C
Y1	Solenoid valve filling
Y2	Solenoid valve quenching
M1	Fan motor (without jumper)
M4	Pump SC-Automatic
S2	Level electrode

CM 201/202 only:

M2	Fan motor top (with jumper)

Water level control Steam Generator





Center S2 ==> Ground: 2 - 6V AC: water level too low

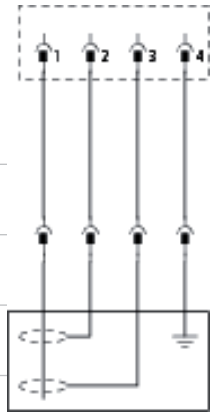
steam heating must switch OFF
solenoid valve lling Y1 ON

Center S2 ==> Ground: 0V AC: water level reached

steam heating can switch ON
solenoid valve lling Y1 switched OFF

Every 2 minutes steam elements will switch off for water level control

X12



Notes:

RATIONAL SC Automatic

During the production of steam, the concentration of minerals inside the steam generator will increase over time. These minerals settle on the heating elements and heat exchanger as well as the interior steam generator walls.

In order to reduce this effect the steam generator will be pumped off and flushed regularly depending on the duration of steam production. This process needs approximately 45 seconds.
After emptying the steam generator it will be filled automatically with fresh water.

There are 4 conditions to start this SC Automatic:

1. Heating time of the steam generator must exceed 60 min. (CM - 45 min.)*
   and

2. the temperature of the thermocouple inside steam generator (B5) must be below 65°C (149°F)
   and

3. the temperature of the thermocouple inside interior cabinet (B1) must be below 70°C (158°F)
   and

4. the unit is switched ON.

   * - can be adjusted from 20-120min

In case the unit is used permanently the above mentioned temperature conditions can not be met.

In this case the following 2 conditions apply:

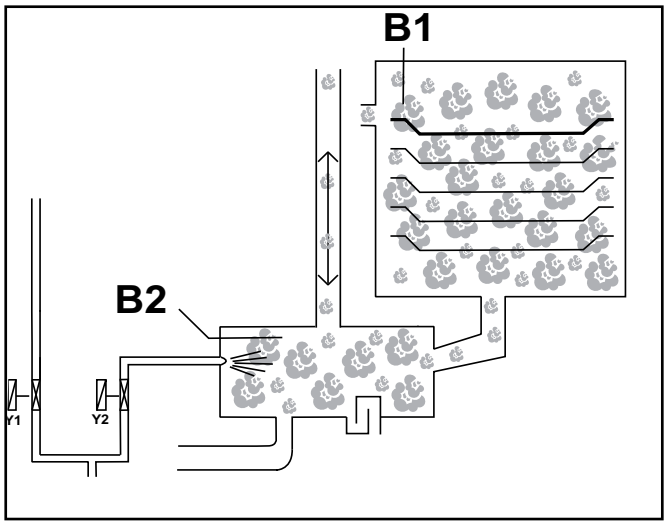
1. The heating time of the steam generator reaches the twice the set duration*,
   i.e. 120 min. (CM - 90 min.) and

2. the unit door is open for longer than 30 seconds

After completion of the SC-Automatic the timer accumulating the steam heating time is re-set to zero.

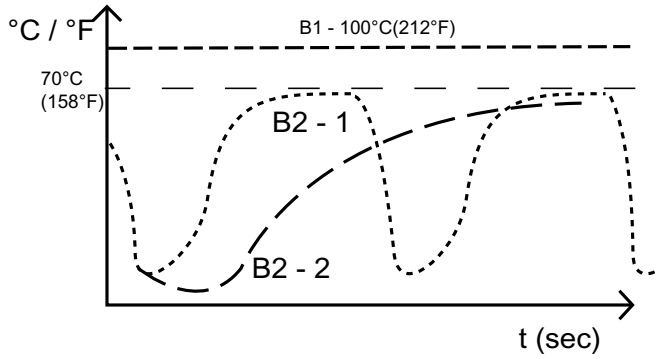
Steam Control CM

Intelligent steam control via quenching sensor



1. Filling of interior cabinet based on time and temperature control of B2 quenching sensor

2. After steam saturation inside cabinet steam will also fill quenching chamber



3. Depending on the frequency of temperature raise of the quenching sensor B2 the duration of the next steam supply is calculated.

B2-1: B2 temperature with partial load
B2-2: B2 temperature with full load

4. The amount of steam inside the cabinet is directly depending on the temperature variation of quenching sensor B2.

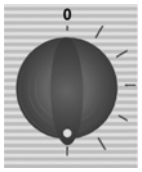
Notes:

Notes:

Additionaly functions CM from 04 - 2004

Below are listed the additionaly functions for the user / operator:

1. Cleaning program

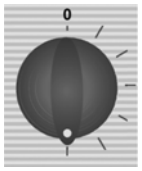


1) Cool down cabinet below 60°C
2) Spray inside cabinet with Rational cleaner
3) Close cabinet door
4) Select „Cool Down
5) Press core temperature key for 10 sec.
6) „CLEn“ will show in cabinet temperature display

7) Press timer key 1x; Cleaning program starts automatically (open cabinet door and rinse interior cabinet after 40 min.) Close door again. Since Software version C1-06-05 a 10 min step hot air will follow to dry the interior cabinet.)
8) After end of program, leave cabinet door open over night.

2. Empty steam generator

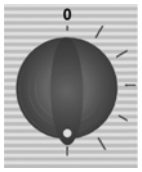
This should be done after each installation to verify free drain connection and prior to disconnection the unit for storage.



1) Open cabinet door
2) Select „Cool Down“
3) Press core temperature key for 10 sec.
4) „CLEn“ will be shown in cabinet temperature display
5) Select „SC“ with temperature dial
6) Close water tap

7) Press timer key 1x and remain on „Cool Down“ position for about 45 sec.

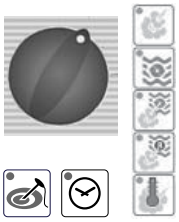
3. Descaling program



1) Open cabinet door
2) Select „Cool Down“
3) Press core temperature key for 10 sec.
4) „CLEn“ will be shown in cabinet temperature display
5) Select „CALC“ with temperature dial

6) Press timer key 1x and follow procedure of the decalcification instruction. (See user manual CM).

Additionaly functions CM from 04 - 2004



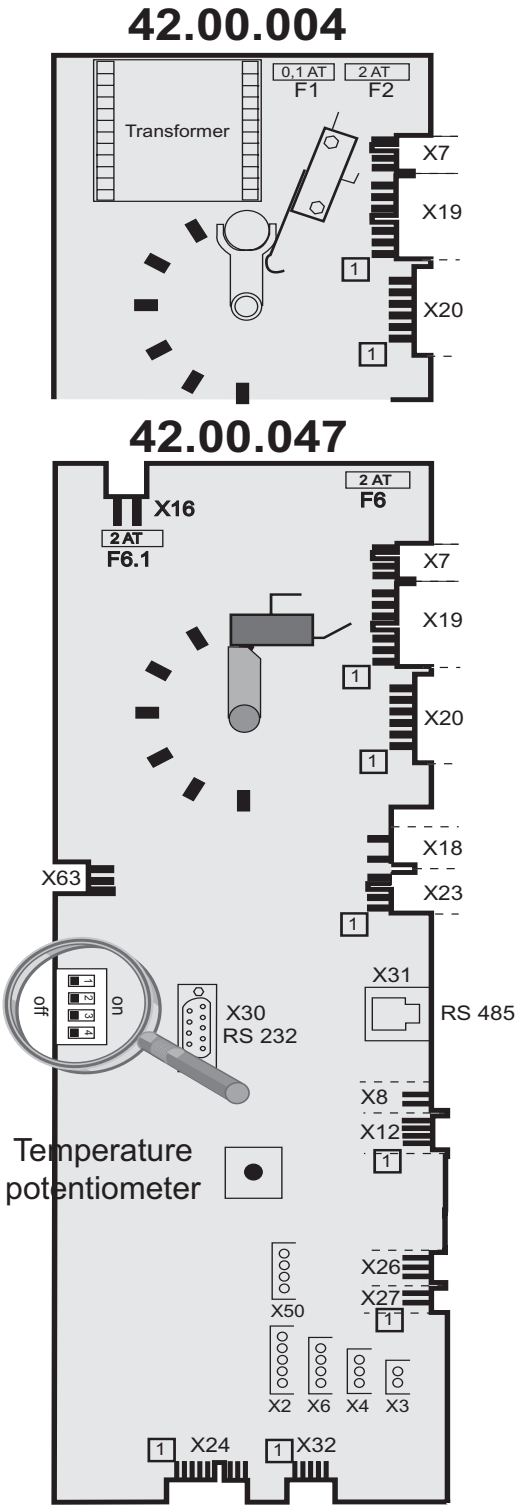
4. Changing temperature display from °C to °F

1) Select any mode
2) Press timer and core temperature key simultaneously for 10 sec. until Display changes from °C to °F or vice versa
3) Release both keys

Notes:

CM PCB (42.00.004)

CM PCB (42.00.047) from 02-2006 (without transformer)



X2 B3 Core temperature

X3 B1 Interior cabinet

X4 B2 Quenching / Steam control

X6 B5 Steam generator

X7 ON - OFF switch

X8 Buzzer

X12 Level electrode

X 16power supply from transformer **(42.00.047)**

X18 SC - pump

X19 Solenoid valves

X20 Energy optimising / Sicotronic

X23 Vent hood (signal door open / closed)

X24 SSR

X26 SSR pulsing (USA version only)

X27 Door contact switch

X30 Serial interface (RS232)

X31 BUS interface

X32 Timer / Core Temp. Potentiometer

X50 external EEPROM

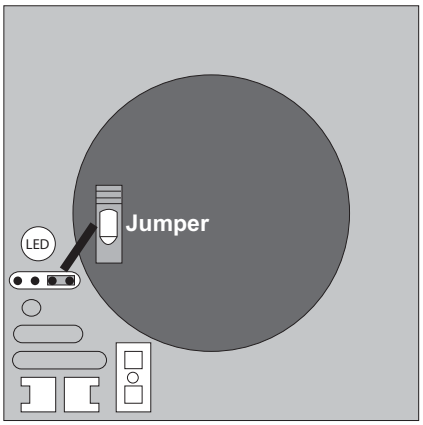
X63 Not used

[1] Counting sequence

Since February 2006 PCB 42.00.004 is replaced by 42.00.047.
(Conversion kit: 87.00.139, pls. see Technical info 04-06)

The transformer on the new PCB 42.00.047 is no more existing and replaced by external transformer 40.00.227

Motor for CM 40.00.274



Jumper 40.01.581 is used on floor model 201 and 202 for top position motor only!

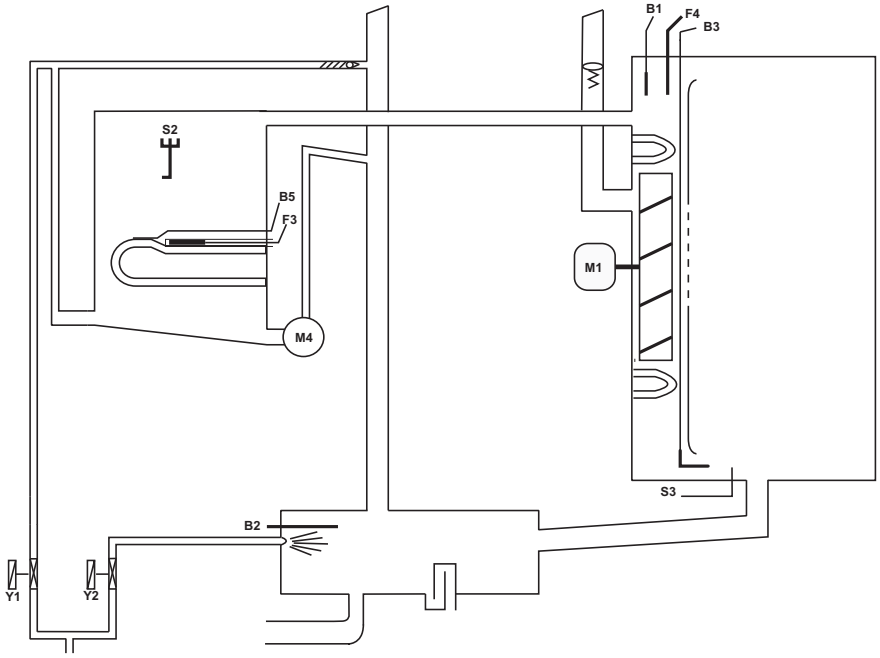
Jumper is not used on models 61 - 102 with one motor only! (Service 34 will be shown!)

LED code fan motor SCC and CM from 04/2004

Reason		Remedy
1x	Motor doesn't start, no changing signal from hallsensor	Check for motor blockage or change motor.
2x	Voltage too low on motor pcb	Check supply voltage or change motor.
3x	Voltage too high on motor pcb	Check supply voltage or change motor.
4x	rpm measurement defective	Change motor.
5x	Motor pcb temperature >105°C	Check cooling system (cooling fan, air intake filter), otherwise change motor
6x	Supply voltage <80V	Check power supply (F1-F2)
7x	Motor pcb defective	Change motor.
8x	Motor pcb defective	Change motor.

CM - Sequence of events

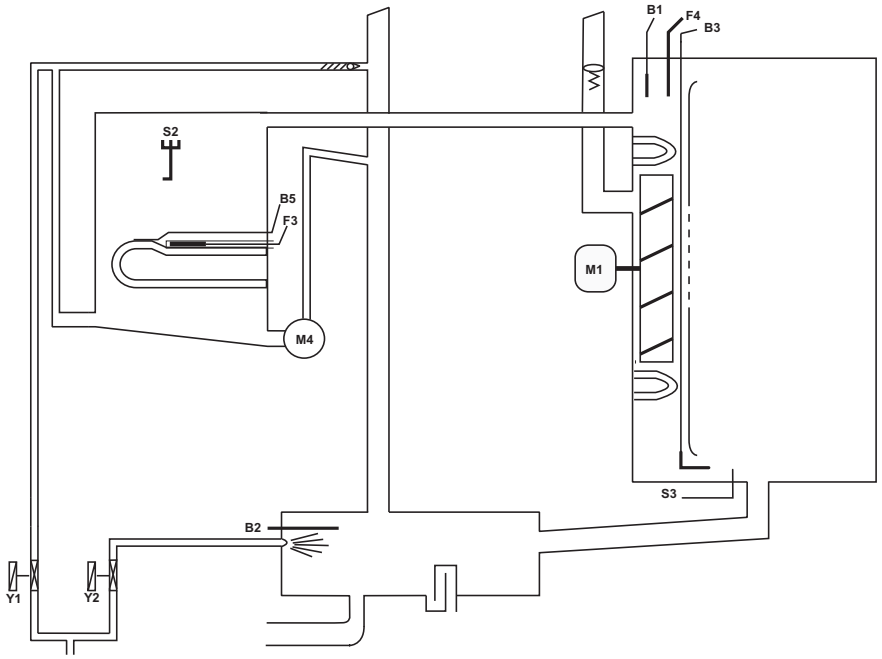
Mode: Steam 100°C (212°F)
Temp. preset, not adjustable



Function Step	Responsible sensor
1. Select Steam mode	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Generatorr
5. Preheat steam generator, if B5 is below 85°C (185°F);	Thermocouple B5 inside Steam Generator
6. Timer starts after successful preheating (blinking dot in Display)	Logic on PCB
7. Steam supply up to steam saturation inside cabinet	Quenching sensor B2 (Steam control)
8. Hot Air supply (only 50%) when set temperature (100°C/212°F) can not be reached in time by Steam alone	Cabinet sensor B1
9. Quenching (set to 70°C/158°F)	Quenching sensor B2

CM - Sequence of events

Mode: Low temperature steam
Temp. range 30-99°C (86-210°F)

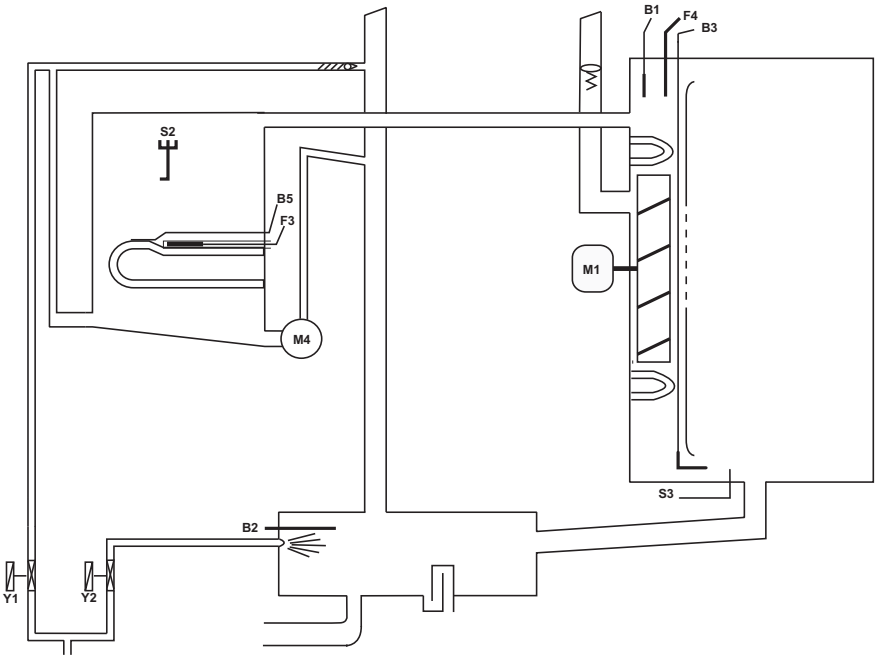


Function Step	Responsible sensor
1. Select Low temperature steam mode Set temperature 30-99°C (86-210°F)	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Generatorr
5. Preheat steam generator, if B5 is below 85°C (185°F);	Thermocouple B5 inside Steam Generator
6. Timer starts after successful preheating (blinking dot in Display)	Logic on PCB
7. Steam supply until set temperature inside cabinet is reached	Cabinet sensor B1
8. Hot Air supply (only 50%) when set temperature can not be reached in time by Steam alone	Cabinet sensor B1
9. Quenching (set to 70°C/158°F)	Quenching sensor B2

Note: Reduction of fan motor speed
In case the actual temperature is higher than the set temperature for longer than 2 minutes, the fan speed will be reduced automatically.

CM - Sequence of events

Mode: Combination
Temp. range 30-300°C (86-572°F)



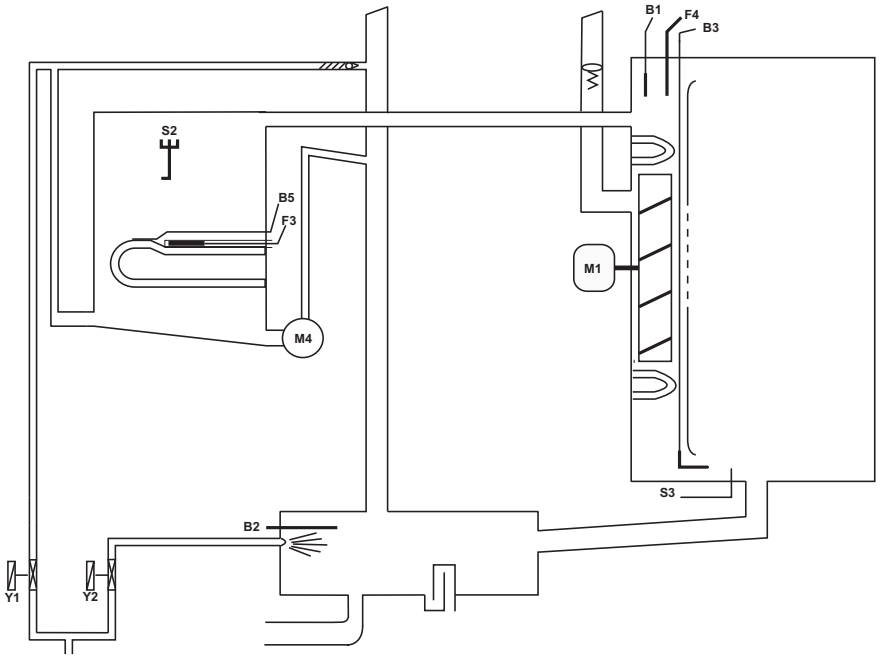
Function Step	Responsible sensor
1. Select Combi mode Set temperature 30-300°C (86-572°F)	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Generatorr
5. Preheat steam generator, if B5 is below 85°C (185°F);	Thermocouple B5 inside Steam Generator
6. Timer starts after successful preheating (blinking dot in Display)	Logic on PCB
7. Hot Air supply until set temperature inside cabinet. **Hot air has priority**	Cabinet sensor B1
8. Steam supply up to steam saturation inside cabinet	Quenching sensor B2 (Steam Control)
9. Quenching (set to 70°C/158°F)	Quenching sensor B2

Note: Reduction of fan motor speed

In case the actual temperature in the range of 30-99°C (37-210°F) is higher than the set temperature for longer than 2 minutes, the fan speed will be reduced automatically.

CM - Sequence of events

Mode: Finishing
Temp. range 30-300°C (86-572°F)

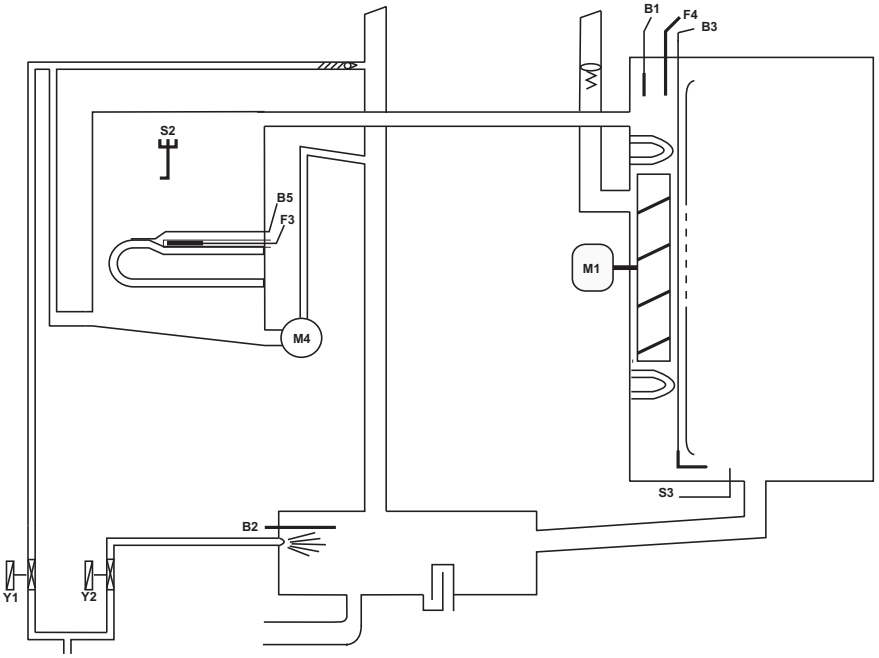


Function Step	Responsible sensor
1. Select Finishing mode Recommended temperature 100-140°C (212-284°F)	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Generatorr
5. Preheat steam generator, if B5 is below 85°C (185°F);	Thermocouple B5 inside Steam Generator
6. Timer starts after successful preheating (blinking dot in Display)	Logic on PCB
7. Hot Air supply Electric units: 12 sec on - 6 sec off Gas units: 30 sec on - 15 sec off	Cabinet sensor B1
8. Steam supply Electric units: 6 sec on - 12 sec off Gas units: 15 sec on - 30 sec off	Quenching sensor B2 (Steam Control)
9. Quenching (set to 70°C/158°F)	Quenching sensor B2

Note: Reduction of fan motor speed
In case the actual temperature in the range of 30-99°C (37-210°F) is higher than the set temperature for longer than 2 minutes, the fan speed will be reduced automatically.

CM - Sequence of events

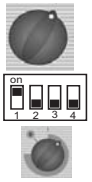
Mode: Hot Air
Temp. range 30-300°C (86-572°F)



Function Step	Responsible sensor
1. Select Hot Air mode Set temperature 30-300°C (86-572°F)	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Hot Air supply unitl set temperature is reached	Cabinet sensor B1
8. Quenching (set to 90°C/194°F)	Quenching sensor B2

Note: Reduction of fan motor speed
In case the actual temperature in the range of 30-99°C (37-210°F) is higher than the set temperature for longer than 2 minutes, the fan speed will be reduced automatically.

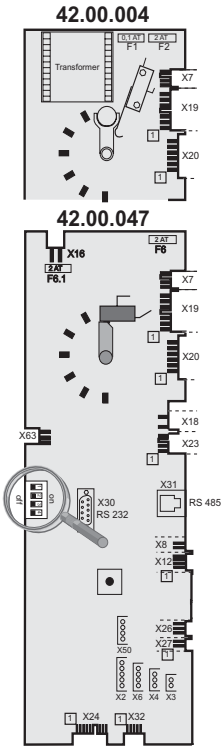
Service level CM from 04 - 2004



1) Switch unit ON
2) On operator PCB set DIP switch 1 to „ON“ position
3) Select service package with timer dial:

dP Diagnostic Program
Er Error code history
rt Running times
SE Basic settings

4) Activate with core temperature key the desired service package
5) Select with timer dial the desired step
6) Activate selected step by pressing timer key
7) To de-activate service package set DIP switch 1 to „OFF“ position.



Function Test

1) Switch unit ON
2) Auf Bedienplatine DIP Schalter 3 auf „ON“ Stellen

F 1 First step of function test is displayed.

3) Select desired step of function test with timer dial
4) Activate selected step by pressing timer key
5) Activate selected step with core temperature key

6) To de-activate function test set DIP switch 3 to „OFF“ position.

Notes:

Service level: dP -- Diagnostic Program

dP #	Description	Connector	Cabinet display	Timer display	Comment
dP 1	Software Version		Software version: C - 1 -	Software Version:06.05	
dP 2	B1 Cabinet sensor	X 3	actual value	max value	Reset by pressing for 5 sec.
dP 3	B2 Quenching sensor	X 4	actual value	max value	Reset by pressing for 5 sec.
dP 4	B3 Core sensor	X 2	actual valuet	max value	Reset by pressing for 5 sec.
dP 5	B5 Steam generator sensor	X 6	actual value	max value	Reset by pressing for 5 sec.
dP 6	PCB temperature		actual value	max value	Reset by pressing for 5 sec.
dP 7	S3 Door contact	X27:(1-2)	S3: 1 - 0	1 - 0	
dP 8	S2 Water level steam generator	X12:(1-4) S2 X19:(1-3) Y1		Y1: 1 - 0	
dP 9	Steam elements 0 - off; 1 - 50%; 2 - 100%		Temp. B5	0 - 1 - 2	
dP 10	Hot Air elements 0 - off; 1 - 50%; 2 - 100%		Temp. B1	0 - 1 - 2	
dP 11	Speed fan motor top	BUS	Set rpm	actual rpm	
dP 12	Speed fan motor bottom	BUS	Set rpm	actual rpm	
dP 13	Energy optimising (Sicotronic)	X 20		1 - 0	
dP 14	SSR pulsing (US version)	X 26		1 - 0	USA version only
dP 15	Unit size and type		61 - 202	ELE - GAS	
dP 16	Flame Current Steam			x.x µA*	since SW Version: C1-06-05 (flame current)
dP 17	Flame Current Hot Air top			x.x µA*	since SW Version: C1-06-05 (flame current)
dP 18	Flame Current Hot Air bottom			x.x µA*	since SW Version: C1-06-05 (flame current)

* With SW Version C1-06-05 the flame current will show as 20-24µA
(This value must be divided by 4 to get the correct flame current e. g. 22:4 = 5,5µA.)
Starting with SW version C1-07-01 the actual flame current is shown .

Service Level: ER -- Error code history

Since software version C1-07-01 the last 10 general error messages are shown (applies for electric and gas models)

Er **When timer key is pressed the error code will be displayed. i.e.:**

Er1	3	B1 Cabinet sensor defective
Er2	14	Y1 Filling solenoid defective
Er3		

ER10		

Note: Er1 - Er10 is a consecutive counting
Number 1-24 are error codes which are generated by the pcb

Gas error GE: (gas units only!)

Since software version C1-07-01 the last 16 gas error messages are shown in addition to the general error messages

GE11	20	No rpm signal
GE12	32	No flame after 5 ignition sequences
GE13		

GE25		

Note: GE11 - 25 is a consecutive counting

Number 1-43 are internal error codes which are generated by the ignition box

Indication of ignition box error messages (1-32 is shown to the operator as „rES“):

1	Hot air or Steam	no gas, gas valve or electrode defective
14	Hot air	gas valve controll, change ignition box
19	Hot air	no flame because flame current is too low check burner setting, flame current, ignition cable and plug
20	Hot air	wrong or no rpm signal from gas blower check gas blower, power supply gas blower and control harness of gas blower
22	Hot air	no flame after 5 ignition sequences no gas, gas valve or electrode defective
24	Steam	gas valve controll, change ignition box
29	Steam	no flame because flame current is too low check burner setting, flame current, ignition cable and plug
30	Steam	wrong or no rpm signal from gas blower check gas blower, power supply gas blower and control harness of gas blower
32	Steam	no flame after 5 ignition sequences no gas, gas valve or electrode defective

Possible failure in case of „E21“

33, 36		Change ignition box
35		Check frequency of main
39	Hot air	Check burner setting, ignition electrode and distance,and flame current
40	Hot air	Check ignition cable
42	Steam	Check burner setting, ignition electrode and distance,and flame current
43	Steam	Check ignition cable

Is shown on display „CHnG PoL“

34	Change polarity of mains

All other numbers (2-13, 15-18, 21, 23, 25-28, 31): change ignition box

Failure Codes CM „ER“

Int. cab. display	Timer display	Failure explanation	Description
H2o	OPEn	H2O open	Lack of water / open water tap
CHnG	PoL	Change Polarity	Phase / Neutral (only gas units)

Timer display	Int. cab. display (E -press core temp. key)	Part concerned	Description
E1		external EEPROM	Not initialised
E2		Timeout of external power optimising system (Sicotronic)	Heating blocked by the extern. energyoptimising system for longer 2 min.
E3		B1 Interior cabinet sensor	Sensor broken
E4		B2 Quenching sensor	Sensor broken
E5		B3 Core sensor	Sensor broken
E6		B5 Sensor steam generator	Sensor broken
E7		Thermocouple on PCB	Sensor broken
E8		Poti interior cabinet	Defective
E9		Poti timer/core temperature	Defective
E10		External EEPROM	Defective
E11		Mode switch	After 5 sec switching on the unit, a cooking mode couldn‘t be identified
E12	1 St	Fan motor 1 (bottom)	St = Status (probably Motor defect)
	1 Co	Fan motor 1 (bottom)	Co = Communication,(Bus failure)
E 12	2 St	Fan motor 2 (top)	St = Status (probably Motor defect)
	2 Co	Fan motor 2 (top)	Co = Communication,(Bus failure)
E13		M4 SC-pump	Mal function
E14		Solenoid valve filling Y1	Mal function
E15		PCB temperature	above 85°C (185°F)
E16		Steam generator	Temperature B5 above 180°C (356°F)
E17		Steam generator	Temperature B5 below -5°C (23°F)
E18		Interior cabinet temp.	Temperature B1 above 340°C (644°F)
E19		free	
E20	1_	Ignition box 1	Ignition box does not reply, Bus failure
E20	2_	Ignition box 2	Ignition box does not reply, Bus failure
E21	1xx	Ignition box 1 Steam	Ignition box defective (change box)
E21	2xx	Ignition box 1 Hot air	Ignition box defective (change box)
E21	3xx	Ignition box 2 Hot air	Ignition box defective (change box)
E22	1xx	Ignition box 1 Steam	Testing of ignition and monitoring necessary
E22	2xx	Ignition box 1 Hot air	Testing of ignition and monitoring necessary
E22	3xx	Ignition box 2 Hot air	Testing of ignition and monitoring necessary
E23		free	
E24		EEPROM	Actual data structure of the EEPROM does not match with the software; flash pcb first

Service Level: rt -- Running Time

rt #	Description	Timer display: 1-999 Temp. display: >1000	Comment
rt 1	Total S3 door openings	number	Reset by pressing for 5 sec.
rt 2	Total time Y1 valve filling	min	Reset by pressing for 5 sec.
rt 3	Total time Y2 valve quenching	min	Reset by pressing for 5 sec.
rt 4	Total time M4 SC-pump	min	Reset by pressing for 5 sec.
rt 5	Total time steam heating time	hrs	Reset by pressing for 5 sec.
rt 6	Total time hot air heating time	hrs	Reset by pressing for 5 sec.
rt 7	Total time steam mode	hrs	Can not be reset
rt 8	Total time hot air mode	hrs	Can not be reset
rt 9	Total time combination mode	hrs	Can not be reset
rt 10	Total time vario steam mode	hrs	Can not be reset
rt 11	Total time finishing mode	hrs	Can not be reset
rt 12	Total time cleaning program	hrs	Can not be reset
rt 13	Total running time unit	hrs	Can not be reset

Notes:

C
M

Service level: SE -- Basic settings

Select desired step with timer dial
(fan motor and heating elements are automatically OFF)

Activate selected step with timer key

Steam heating time since last SC-Automatic

Press time and core key simultaneously for 5 seconds to set steam heating time (SE2) to preset steam heating time plus 1 minute (default 45+1min) => test function for SC-Automatic

---

Preset Steam heating time until SC-Automatic (default 45min)

Press time key and adjust preset steam heating time from 20 - 120 minutes with timer dial

---

Flushing time SC-Automatik (default 45 seconds)

Press time key and adjust flushing time of SC-automatik from 30 - 90 seconds with timer dial

---

Operation steam generator pump (**oFF** - continous or **on** - pulsing)

Press time key and select „on“ or „oFF“ with timer dial

Show mode (on - oFF) SHO

Press time key and select „on“ or „oFF“ with timer dial

Setting new gas type (G20, G25, G30, G31, 13A)

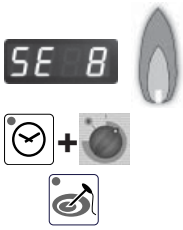
Press time key, keep it pressed and select new gas type with timer dial

Confirm new gas type by pressing core temperature key once.
Corresponding gasblower speed is automatically adjusted
NOTE: After changing gas type a waste gas analysis must be carried out in the function test.

Presetting of CO_2 screw in mm on gas valve after gas type modification / changing gas valve

Press time key, keep it pressed and select with timer dial “ST“ for steam, “HA1“ for hot air top or “HA2“ for hot air bottom (only 201/202) with timer dial;
Average lenght in mm of CO_2 screw on gas valve is shown on timer display

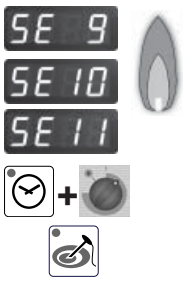
Service level: SE -- Basic settings



Adjustment of installation altitude above sea level (since SW C1-06-05)-500m - 4500m

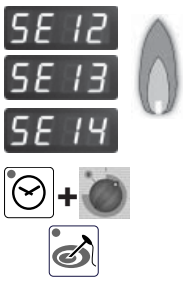
Press time key, keep it pressed and select installaton altitude in 500m steps by timer dial. Confirm altitude setting by pressing simultaneously core temperature key once

---



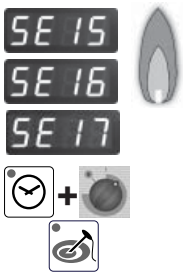
Adjusting speed of blower motor steam (+/ -10%)
(After blower speed adjustment the original rpm is shown in the temp. display, the changed rpm is shown in the time display)

Press time key, keep it pressed and adjust displayed rpm with timer dial
SE9 = MIN rpm; SE10 = Start rpm; SE11 = MAX rpm
NOTE: After changing speed of blower motor a waste gas analysis MUST be carried out in the function test.



Adjusting speed of blower motor hot air top (+/ -10%)
(After blower speed adjustment the original rpm is shown in the temp. display, the changed rpm is shown in the time display)

Press time key, keep it pressed and adjust displayed rpm with timer dial
SE12 = MIN rpm; SE13 = Start rpm; SE14 = MAX rpm
NOTE: After changing speed of blower motor a waste gas analysis MUST be carried out in the function test.



Adjusting speed of blower motor hot air bottom (+/ -10%)
(After blower speed adjustment the original rpm is shown in the temp. display, the changed rpm is shown in the time display)

Press time key, keep it pressed and adjust displayed rpm with timer dial
SE15 = MIN rpm; SE16 = Start rpm; SE17 = MAX rpm
NOTE: After changing speed of blower motor a waste gas analysis MUST be carried out in the function test.

Notes:

Service level: SE -- Function test

NOTE: In Function test components are NOT protected against overload!

	Function	Connection I/O PCB	Cabinet Display	Time Display	Comment
F1	Steam 50%, Electric unit	X24:(1-2)	actual temp.B5 steam generator	1 / 0	Gas: no function
F2	Steam 100% Electric unit	X24:(1-2)+(5-6	actual temp.B5 steam generator	1 / 0	Gas: no function
F3	Hot Air 50% Electric unit	X24:(7-8)	actual temp. B1 cabinet	1 / 0	Gas: no function
F4	Hot Air 100% Electric unit	X24:(7-8)+(3-4)	actual temp. B1 cabinet	1 / 0	Gas: no function
F5	Steam Gas unit	BUS	actual temp.B5 steam generator	1 / 0	Electric: no function
F6	Hot air top Gas unit	BUS	actual temp.B1 cabinet	1 / 0	Electric: no function
F/	Hot air bottom Gas unit	BUS	actual temp.B1 cabinet	1 / 0	Electric: no function
F8	Bottom Motor MAX speed	BUS	Set rpm	Act. rpm	
F9	Bottom Motor MIN speed	BUS	Set rpm	Act. rpm	
F10	Top Motor MAX speed	BUS	Set rpm	Act. rpm	
F11	Top Motor MIN speed	BUS	Set rpm	Act. rpm	
F12	Solenoid valve quenching	X19:(2-4)	actual temp. B2 quenching	Y2, 1 / 0	
F13	Solenoid valve filling	X19:(2-4)	Level electrode S2, 1 / 0	Y1, 1 / 0	
F14	Steam generator pump	X18:(1-2) M4 X12:(1-4) S2	Level electrode S2, 1 / 0	M4,1 / 0	
F15	Buzzer			1 / 0	
F16	All Displays / LED				
F17	Relais Vent hood (door open/close)	X 23: (1-2-3)		1 / 0	

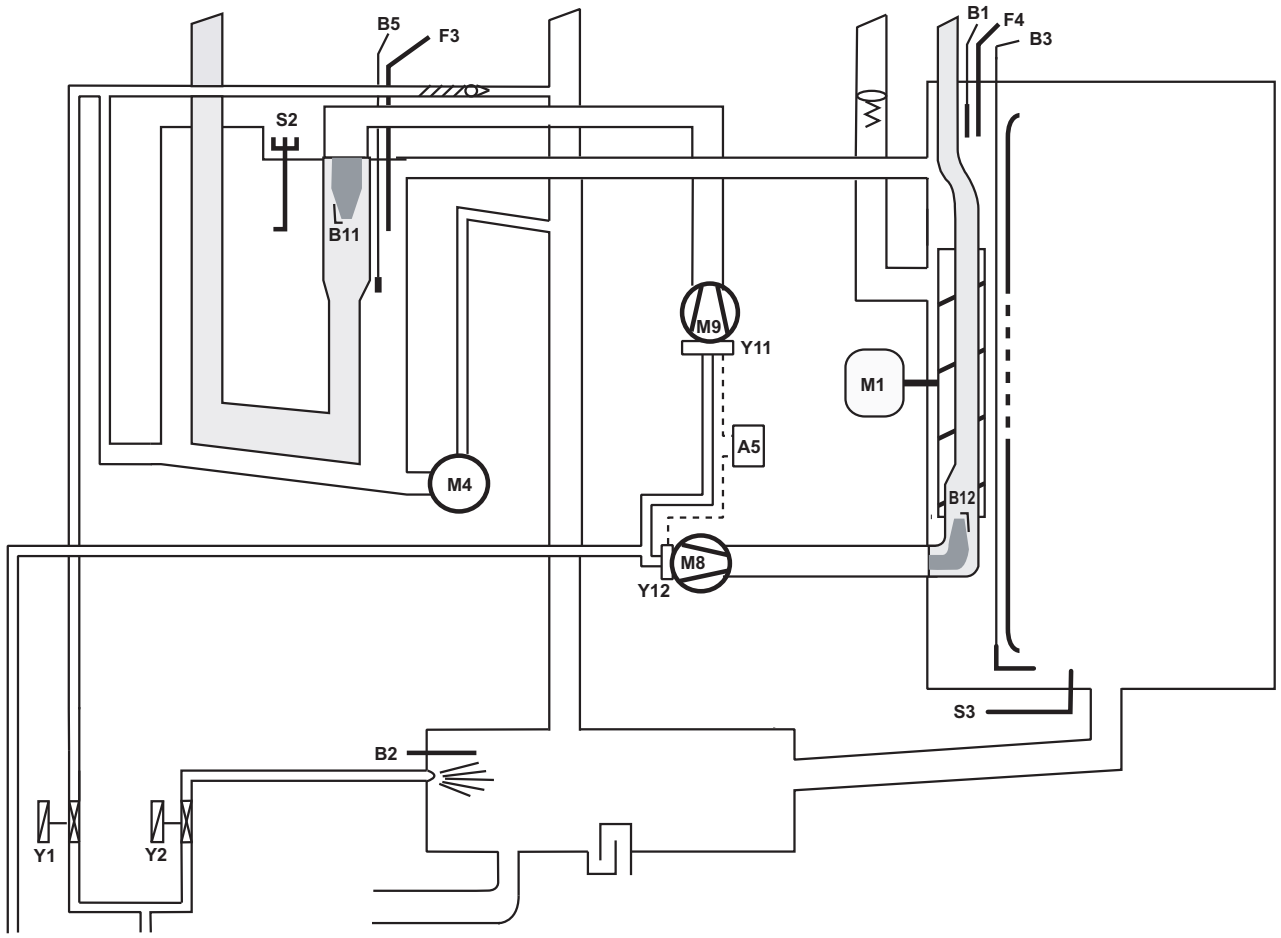
Function test

NOTE: In Function test components are NOT protected against overload!

	Function	Connection I/O PCB	Cabinet Display	Time Display	Comment
F19	Steam blower motor MIN rpm	BUS	Actual blower rpm	Set CO_2 value	Check CO_2 value only
F20	Steam blower motor START rpm	BUS	Actual blower rpm		
F21	Steam blower motor MAX rpm	BUS	Actual blower rpm	Set CO_2 value	Adjust CO_2 value with C02 screw on gas valve
F22	Hot Air blower motor TOP, MIN rpm	BUS	Actual blower rpm	Set CO_2 value	Check CO_2 value value only
F23	Hot Air blower motor TOP, START rpm	BUS	Actual blower rpm		
F24	Hot Air blower motor TOP, MAX rpm	BUS	Actual blower rpm	Set CO_2 value	Adjust CO_2 value with C02 screw on gas valve
F25	Hot Air blower motor TOP, MIN rpm	BUS	Actual blower rpm	Set CO_2 value	Check CO_2 value value only
F26	Hot Air blower motor TOP, START rpm	BUS	Actual blower rpm		
F27	Hot Air blower motor TOP, MAX rpm	BUS	Actual blower rpm	Set CO_2 value	Adjust CO_2 value with C02 screw on gas valve

Notes:

CM Gas from 04 - 2004



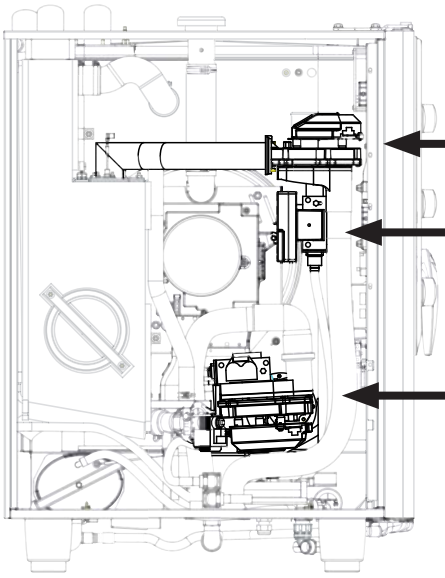
A5	Ignition module (Steam and Hot Air) (without jumper)
B1	Thermocouple interior cabinet
B2	Thermocouple quenching / Steam control
B3	Thermocouple core temperature
B5	Thermocouple steam generator
B11	Ignition/monitoring electrode steam
B12	Ignition/monitoring electrode hot air
F3	Safety thermostat steam generator 135°C
F4	Safety thermostat interior cabinet 360°C
M1	Fan motor
M4	SC-pump
M8	Gas blower motor hot air
M9	Gas blower motor steam
Y1	Solenoid valve filling
Y2	Solenoid valve quenching
Y11	Gas valve steam
Y12	Gas valve hot air
S2	Level electrode
S3	Door reed switch

Only oor units 201 - 202

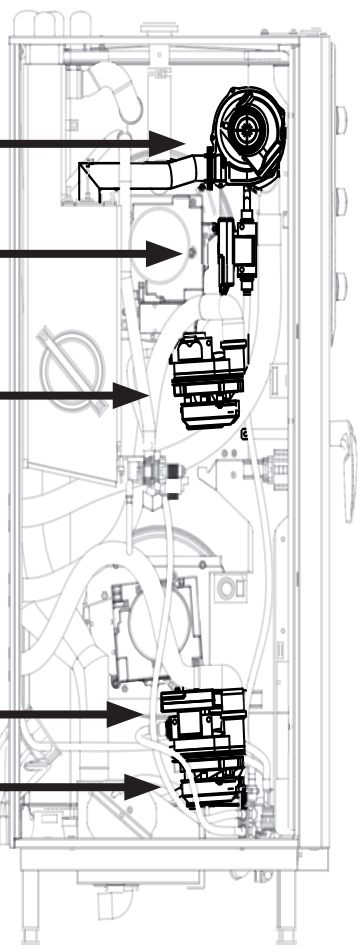
A6	Ignition module hot air bottom (with jumper)
M2	Fan motor top (with jumper)
M10	Gas blower motor hot air bottom
Y13	Gas valve hot air bottom
B13	Ignition/monitoring electrode hot air bottom

Identification of the different gas burners / Gas blowers:

CM 61 - 62 - 101 - 102



CM 201 - 202



Steam Blower

Steam Gas valve with
common ignition box for
Steam **and** Hot Air (top) fitted

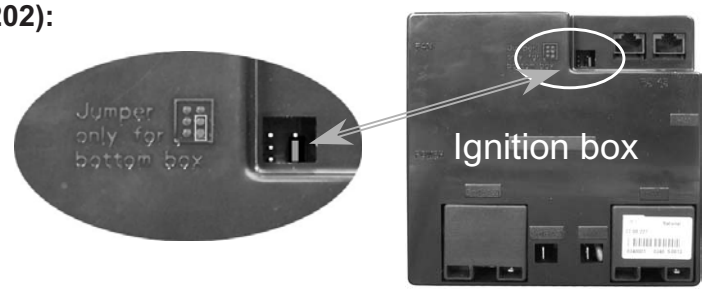
Hot Air blower (top)

Hot Air (bottom) Gas valve with
second ignition box fitted

Hot Air blower bottom
(ignition box fitted)

Ignition box of Hot Air Blower, Bottom (201-202):

Jumper must ONLY be set
on Ignition Box for
Hot Air Blower Bottom (201 - 202)



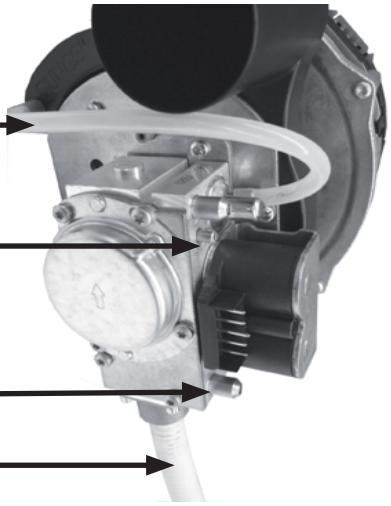
Gas valve components

Compensation hose

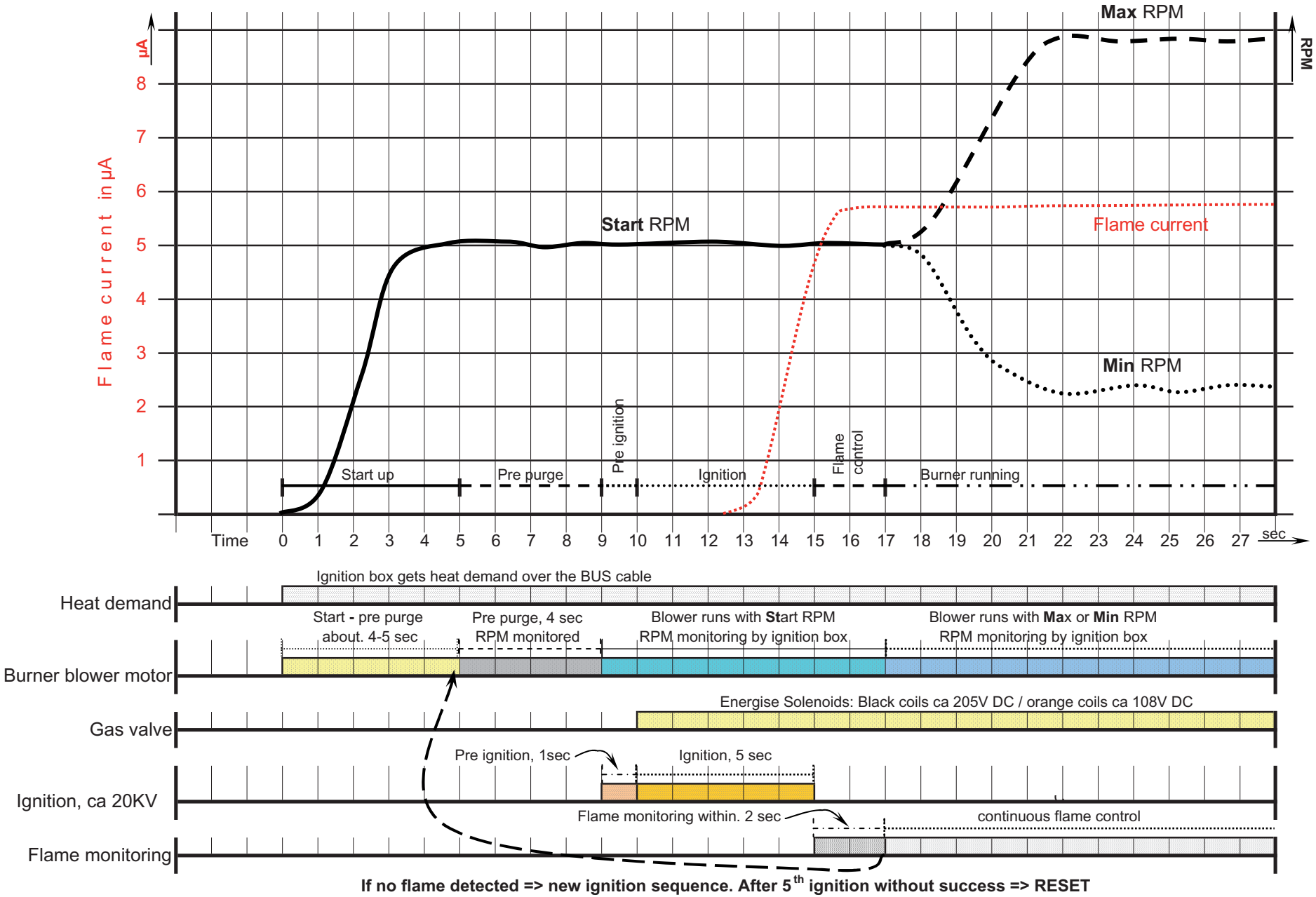
CO_2 Srew

Measuring test point for dynamic gas flow pressure

Gas supply



Sequence of events of Steam / Hot Air Burner (SCC as well as CM)



If no flame detected => new ignition sequence. After 5th ignition without success => RESET

Sequence of events of Burner and Ignition control

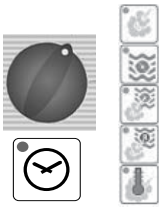
Speed of burner blower motor in U/min

Check Gas Type / Gas Conversion: CM Gas from 04-2004

Whenever changing connected type of gas a detailed flue gas analysis MUST be done using adequate CO and CO_2 measuring equipment!

This shall ONLY be done by trained technicians!
Changing the gas setting only by adjusting the CO_2 screw will result in an unsafe flue gas condition, is dangerous to life and will damage the equipment!

Note: Yearly maintenance of Gas components is needed:
Clean Burner head, Electrode and interior blower housing from fats and dust! (TI03-2007)



1) Select any mode and cooking time

2) Open control panel

3) Set DIP switch 1 on PCB to „ON“ position

4) With timer dial select: „SE“ = Settings:

5) Activate „Settings“ by pressing core temperature key; display changes to „SE1“

6) With timer dial select: SE6

7) Activate position SE6 with timer key (keep key pressed)

8) Select new gas type with timer dial:
G20=Nat Gas H, G25=Nat Gas L, G30=3BP, G31=3P, 13A=Nat. Gas Japan

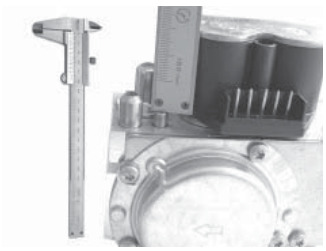
9) Confirm new gas type with core temperature key (now timer key can be released)

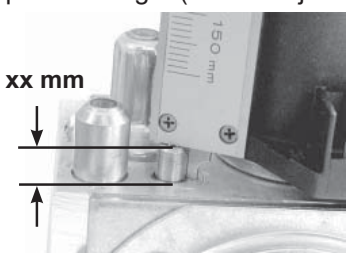
10) With timer dial select: SE7

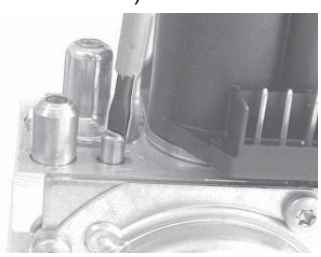
11) Activate position SE7 with timer key (keep key pressed)

12) Keeping the timer key pressed the average length of the CO_2 screw is indicated. „St“ Steam, „HA1“ Hot air top, HA2“ Hot air bottom. Select the corresponding value with the timer dial (keep timer key pressed)

13) Set the CO_2 screw according the values of timer display or according the table “Values for burner adjustments“ Setting this screw to the given length shall ONLY bring the unit into working condition with the newly supplied gas. (! ! ! Set all CO_2 screws ! ! !). If the mm setting of CO_2 screw is too high, turn CO_2 screw first 2 turns clockwise and then to the requested length (Screw adjustment tolerance).







This does NOT replace ue gas analysis or make the ue gas analysis obsolete!

14) De-activate selected package “SE“ by pressing core temperature key

15) To exit service program set DIP switch 1 to „OFF“ position

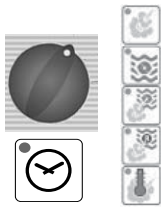
16) To store the new gas type the unit must be switched OFF and ON again!

17) Check / Set Installation Altitude in Basic settings. Perform flue gas analysis in function test at F21, F24, F27 as well as the check of CO_2 values at F19, F22, F25.

Changing installation altitude: CM gas

Adjusting the installation altitude compensates for the different concentration of oxygen in the air at different height above sea level by adjusting the blower speed accordingly.

Note: The altitude settings of 0-499 and 500-999m are identical. Therefore resetting of installation altitude needs to be done only when installing above 1000m (3280ft) or below sea level.



1) Select any mode and cooking time

2) Open control panel

3) Set DIP switch 1 on PCB to „ON“ position

4) With timer dial select: „SE“ = Settings

5) Activate „Settings“ by pressing core temperature key; display changes to „SE1“.

6) With timer dial select: SE8

7) Activate position SE8 with timer key and keep it pressed.

8) While pressing timer key corresponding installation altitude above sea level can be selected with the timer dial.

Possible altitude selection:

-500 m -	- 1 m
0 m -	499 m
500 m -	999 m
1000 m -	1499 m
1500 m -	1999 m
2000 m -	2499 m
2500 m -	2999 m
3000 m -	3499 m
3500 m -	3999 m
4000 m -	4499 m
4500 m -	4999 m

9) Confirm new altitude setting with core temperature key (Keep timer key pressed)

10) Release timer and core temperature key

11) De-activate selected package by pressing core temperature key

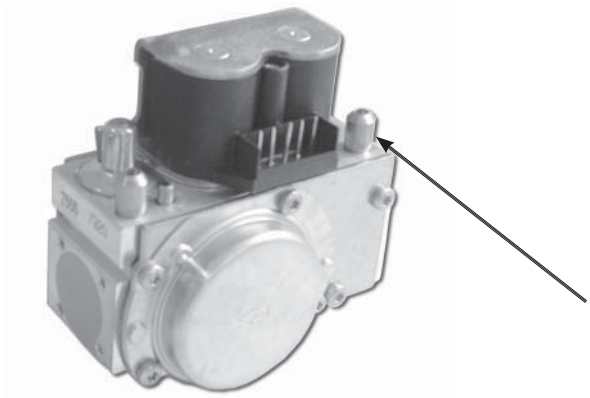
12) To exit service program set DIP switch 1 to „OFF“ position

13) To store the new altitude setting the unit must be switched OFF and ON again!

14) Perform flue gas analysis in function test at F21, F24, F27 as well as the check of CO_2 values at F19, F22, F25.

Checking of dyn. input gas flow pressure

- Before you carry out a flue gas analysis check input gas flow pressure when burner is running
- Check input gas flow pressure
- See correct values of input flow pressure on data plate
- If necessary adjust gas input pressure



Necessary input gas flow pressure:

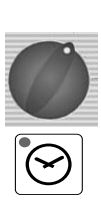
-	Natural gas	18 - 25 mbar
-	LPG	30 - 57 mbar.

Note: All gas units in the kitchen must operate on high flame.

NOTES:

C
M

Flue gas analysis
Steam (F21) at MAX rpm and Checking CO_2 (F19) at MIN rpm



1) Select any mode and cooking time

2) Open control panel

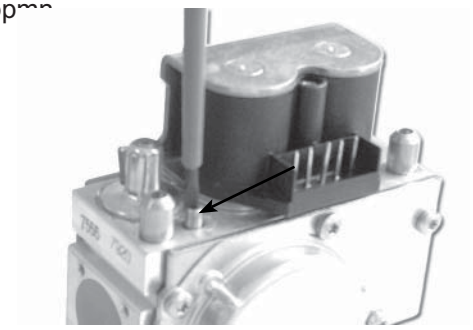
3) Set DIP switch 3 on PCB to „ON“ position

4) „F1“ is shown on timer display. With timer dial select position F21

5) Enter position F21 „Steam MAX“ with timer key

6) Activate position F21 with core temperature key;
NOTE: In this position core temp. key is used as a switch and will automatically deactivate after 4 minutes. Gas blower rpm is shown in cabinet temp. display.
Specific CO_2 value is shown on timer display, i.e. 9,5

7) Place flue gas testing nozzle in correct flue outlet.
Adjust CO_2 to given value by turning CO_2 screw on gas valve.
You also can find that value on table “Values for burner adjustments.
- If CO_2 value is too low => turn CO_2 screw anti clockwise (+ direction),
- If CO_2 value is too high => turn CO_2 screw first 2 turns clockwise (- direction), and than slowly anti clockwise (+ direction) till you get the indicated CO_2 value. (Screw adjustment tolerance).
- CO value must be below 300ppm



8) Press core temperature key. Burner will stop.

9) Leave position F21 „Steam MAX“ with timer key.

10) Select position F19 with timer dial.

11) Enter „Steam MIN“ with timer key.

12) Activate position F19 with core temperature key.
NOTE: in this position core temp. key is used as a switch and will automatically deactivate after 4 minutes. Specific CO_2 value is shown on timer display, i.e 8,8

13) Carry out a CO_2 measurement to cross-check CO_2 value only.
CO_2 value must be equivalent to the values mentioned in table “Values for burner adjustments“

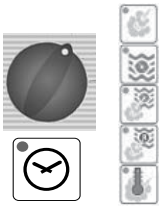
14) If CO_2 value is out of allowed tolerance => **Change gas valve**

15) Press core temperature key. Burner will stop.

16) Leave position F19 „Steam MIN“ with timer key.

17) To exit service program set DIP switch 3 to „OFF“ position

Flue gas analysis
Steam (F21) at MAX rpm and Checking CO_2 (F19) at MIN rpm



1) Select any mode and cooking time

2) Open control panel

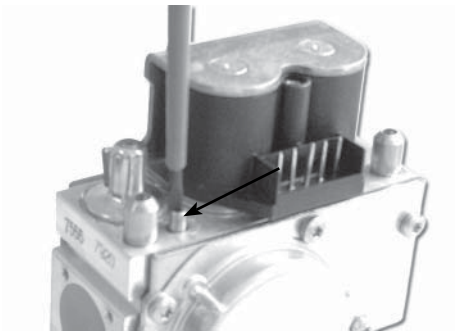
3) Set DIP switch 3 on PCB to „ON“ position

4) „F1“ is shown on timer display. With timer dial select position F21

5) Enter position F21 „Steam MAX“ with timer key

6) Activate position F21 with core temperature key;
NOTE: In this position core temp. key is used as a switch and will automatically deactivate after 4 minutes. Gas blower rpm is shown in cabinet temp. display.
Specific CO_2 value is shown on timer display, i.e. 9,5

7) Place flue gas testing nozzle in correct flue outlet.
Adjust CO_2 to given value by turning CO_2 screw on gas valve.
You also can find that value on table “Values for burner adjustments.
   - If CO_2 value is too low => turn CO_2 screw anti clockwise (+ direction),
   - If CO_2 value is too high => turn CO_2 screw first 2 turns clockwise (- direction), and than slowly anti clockwise (+ direction) till you get the indicated CO_2 value. (Screw adjustment tolerance).
   - CO value must be below 300ppmn



8) Press core temperature key. Burner will stop.

9) Leave position F21 „Steam MAX“ with timer key.

10) Select position F19 with timer dial.

11) Enter „Steam MIN“ with timer key.

12) Activate position F19 with core temperature key.
NOTE: in this position core temp. key is used as a switch and will automatically deactivate after 4 minutes. Specific CO_2 value is shown on timer display, i.e 8,8

13) Carry out a CO_2 measurement to cross-check CO_2 value only.
CO_2 value must be equivalent to the values mentioned in table “Values for burner adjustments“

14) If CO_2 value is out of allowed tolerance => **Change gas valve**

15) Press core temperature key. Burner will stop.

16) Leave position F19 „Steam MIN“ with timer key.

17) To exit service program set DIP switch 3 to „OFF“ position

Flue gas analysis Hot air bottom (F27) at MAX rpm and Checking CO_2 (F25) at MIN rpm only (201/202)

1) Select any mode and cooking time

2) Open control panel

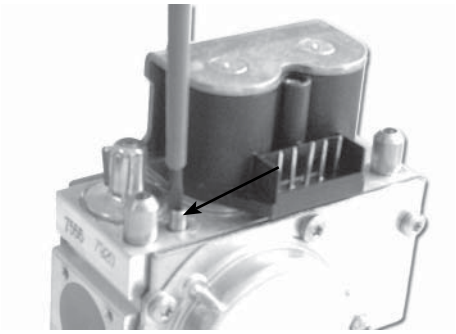
3) Set DIP switch 3 on PCB to „ON“ position

4) „F1“ is shown on timer display. With timer dial select position F27

5) Enter position F27 Hot air bottom MAX“ with timer key

6) Activate position F27 with core temperature key;
NOTE: In this position core temp. key is used as a switch and will automatically deactivate after 4 minutes. Gas blower rpm is shown in cabinet temp. display.
Specific CO_2 value is shown on timer display, i.e. 9,4

7) Place flue gas testing nozzle in correct flue outlet.
Adjust CO_2 to given value by turning CO_2 screw on gas valve.
You also can find that value on table “Values for burner adjustments.
   - If CO_2 value is too low => turn CO_2 screw anti clockwise (+ direction),
   - If CO_2 value is too high => turn CO_2 screw first 2 turns clockwise (- direction), and than slowly anti clockwise (+ direction) till you get the indicated CO_2 value. (Screw adjustment tolerance).
   - CO value must be below 300ppmn



8) Press core temperature key. Burner will stop.

9) Leave position F27 Hot air bottom MAX“ with timer key.

10) Select position F25 with timer dial.

11) Enter Hot air bottom MIN“ with timer key.

12) Activate position F25 with core temperature key.
NOTE: in this position core temp. key is used as a switch and will automatically deactivate after 4 minutes. Specific CO_2 value is shown on timer display, i.e 8,7

13) Carry out a CO_2 measurement to cross-check CO_2 value only.
CO_2 value must be equivalent to the values mentioned in table “Values for burner adjustments“

14) If CO_2 value is out of allowed tolerance => **Change gas valve**

15) Press core temperature key. Burner will stop.

16) Leave position F25 Hot air bottom MIN“ with timer key.

17) To exit service program set DIP switch 3 to „OFF“ position

Changing Gas blower speed
CM Gas from 04 - 2004 (ab Software C-06-03) par example Steam, MIN SE9

This setting shall ONLY be done by specially trained and RATIONAL approved technicians!

1) Select any mode and cooking time

2) Open control panel

3) Set DIP switch 1 on PCB to „ON“ position

4) With timer dial select: „SE“ = Settings:

5) Activate „Settings“ by pressing core temperature key; display changes to „SE1“

6) With timer dial select: SE9

7) Activate position SE9 „blower motor steam MIN“ rpm with timer.Timer display shows stored value from EEPROM, i.e. 6250.

8) While pressing timer key blower speed can be adjusted with timer dial by + / -10%. Note: Adjust steps in increments of 30rpm only! Changed rpm will be shown in timer display

9) Confirm new rpm setting with core temperature key (keep timer key pressed).

10) Release timer key.

11) De-activate selected package by pressing core temperature key

12) To exit service program set DIP switch 1 to „OFF“ position

13) To store the new blower speed setting the unit must be switched OFF and ON again!

14) Perform flue gas analysis in function test at F21, F24, F27 as well as the check of CO_2 values at F19, F22, F25.

With this procedure you can change gas blower speed (MAX, Start, MIN rpm) for steam, hot air top and hot air bottom.
Changing blower speed must be followed by ue gas analysis!:

	Steam	Hot air top	Hot air bottom
MIN	SE 9	SE 12	SE 15
Start	SE 10	SE 13	SE 16
MAX	SE 11	SE 14	SE 17

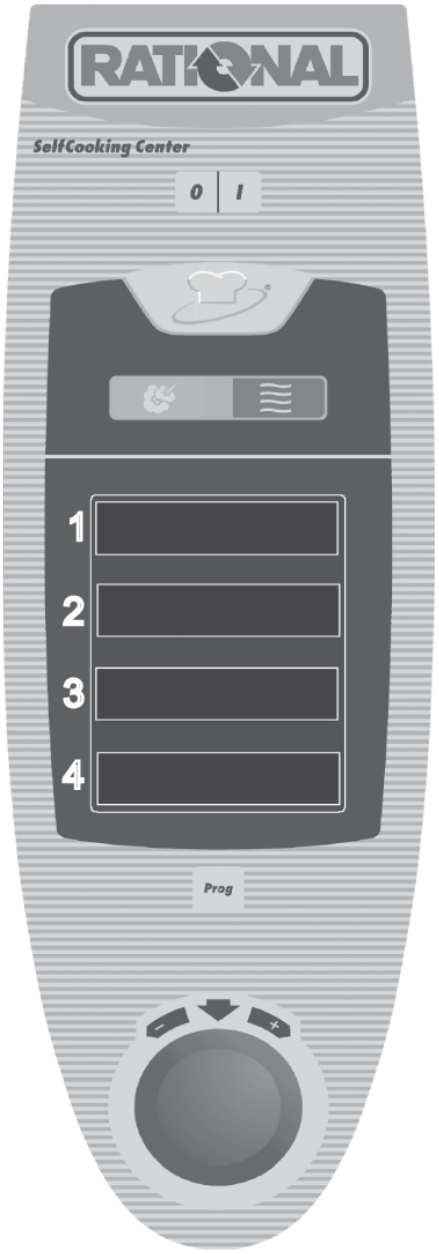
Values for burner adjustments of gas units SCC / CM *(valid since January, 2007), entry in "red" => new*

Type of gas	SCC - CM	Steam Burner				Hot Air Burner - Top Side				Hot Air Burner - Bottom Side (only at 201-202)			
		Input gas flow pressure	Adjustment of CO_2 - Screw	CO_2 at "MAX" rpm ± 0,2%	CO2 at "Min" rpm - 0,2% / + 0,5%	Input gas flow pressure	Adjustment of CO_2 - Screw	CO_2 at "MAX" rpm ± 0,2%	CO2 at "Min" rpm - 0,2% / + 0,5%	Input gas flow pressure	Adjustment of CO_2 - Screw	CO_2 at "MAX" rpm ± 0,2%	CO2 at "Min" rpm - 0,2% / + 0,5%
Natural Gas High (G20)	61	18 - 25 mbar	4,2 mm	9,4%	8,0%	18 - 25 mbar	3,6 mm	9,4%	8,3%				
	62	18 - 25 mbar	3,4 mm	9,4%	7,9%	18 - 25 mbar	3,5 mm	9,4%	8,0%				
	101	18 - 25 mbar	3,2 mm	9,4%	7,7%	18 - 25 mbar	3,3 mm	9,4%	7,7%				
	102	18 - 25 mbar	3,6 mm	9,4%	8,4%	18 - 25 mbar	3,1 mm	9,4%	8,6%				
	201	18 - 25 mbar	3,7 mm	9,4%	8,2%	18 - 25 mbar	3,3 mm	9,4%	7,8%	18 - 25 mbar	3,2 mm	9,4%	7,8%
	202	18 - 25 mbar	3,7 mm	9,5%	8,8%	18 - 25 mbar	3,2 mm	9,4%	8,7%	18 - 25 mbar	3,2 mm	9,4%	8,7%
Natural Gas Low (G25)	61	18 - 25 mbar	4,8 mm	9,3%	8,2%	18 - 25 mbar	4,6 mm	9,3%	8,0%				
	62	18 - 25 mbar	4,1 mm	9,3%	7,8%	18 - 25 mbar	4,3 mm	9,3%	7,7%				
	101	18 - 25 mbar	3,8 mm	9,3%	7,8%	18 - 25 mbar	3,8 mm	9,3%	7,8%				
	102	18 - 25 mbar	5,5 mm	9,3%	8,0%	18 - 25 mbar	3,8 mm	9,3%	8,3%				
	201	18 - 25 mbar	5,1 mm	9,3%	9,0%	18 - 25 mbar	3,9 mm	9,3%	7,8%	18 - 25 mbar	3,9 mm	9,3%	7,8%
	202	18 - 25 mbar	4,8 mm	9,4%	8,9%	18 - 25 mbar	3,8 mm	9,3%	8,6%	18 - 25 mbar	3,8 mm	9,3%	8,6%
				3B/P	100% Butane	3B/P	100% Butane						
LPG 3BP (G30)	61	30 - 57 mbar	2,5 mm	10,4%	11,6%	9.3%	10,6%	30 - 57 mbar	2,3 mm	10,4%	11,6%	9,4%	10,4%
	62	30 - 57 mbar	2,4 mm	10,4%	11,6%	8.5%	9,2%	30 - 57 mbar	2,4 mm	10,4%	11,6%	8,1%	9,6%
	101	30 - 57 mbar	2,4 mm	10,4%	11,6%	8.4%	9,2%	30 - 57 mbar	2,3 mm	10,4%	11,6%	8,2%	9,6%
	102	30 - 57 mbar	2,5 mm	10,4%	11,6%	8.9%	10,1%	30 - 57 mbar	2,4 mm	10,4%	11,6%	9,4%	10,3%
	201	30 - 57 mbar	2,5 mm	10,4%	11,6%	8.8%	9,8%	30 - 57 mbar	2,4 mm	10,4%	11,6%	8,8%	9,6%
	202	30 - 57 mbar	2,5 mm	10,4%	11,6%	9.7%	11,0%	30 - 57 mbar	2,3 mm	10,4%	11,6%	9.7%	10,1%
LPG 3P (G31)	61	30 - 57 mbar	2,9 mm	11,1%		9,4%		30 - 57 mbar	2,5 mm	11,1%		9,8%	
	62	30 - 57 mbar	2,5 mm	11,1%		8,9%		30 - 57 mbar	2,5 mm	11,1%		9,2%	
	101	30 - 57 mbar	2,4 mm	11,1%		9,3%		30 - 57 mbar	2,7 mm	11,1%		9,7%	
	102	30 - 57 mbar	2,6 mm	11,1%		9,7%		30 - 57 mbar	2,5 mm	11,1%		9,9%	
	201	30 - 57 mbar	2,6 mm	11,1%		9,6%		30 - 57 mbar	2,4 mm	11,1%		9,1%	
	202	30 - 57 mbar	2,5 mm	11,1%		10,7%		30 - 57 mbar	2,3 mm	11,1%		10,0%	
Natural gas Japan (13A)	61	18 - 25 mbar	4,2 mm	9,5%		8,6%		18 - 25 mbar	3,5 mm	9,5%		8,4%	
	62	18 - 25 mbar	3,7 mm	9,5%		7,8%		18 - 25 mbar	3,4 mm	9,5%		8,0%	
	101	18 - 25 mbar	3,1 mm	9,5%		8,0%		18 - 25 mbar	3,0 mm	9,5%		8,2%	
	102	18 - 25 mbar	3,3 mm	9,5%		8,5%		18 - 25 mbar	3,1 mm	9,5%		8,5%	
	201	18 - 25 mbar	3,4 mm	9,5%		8,4%		18 - 25 mbar	3,1 mm	9,5%		8,2%	
	202	18 - 25 mbar	3,5 mm	9,5%		9,1%		18 - 25 mbar	3,1 mm	9,5%		8,8%	

How to carry out a burner adjustment:

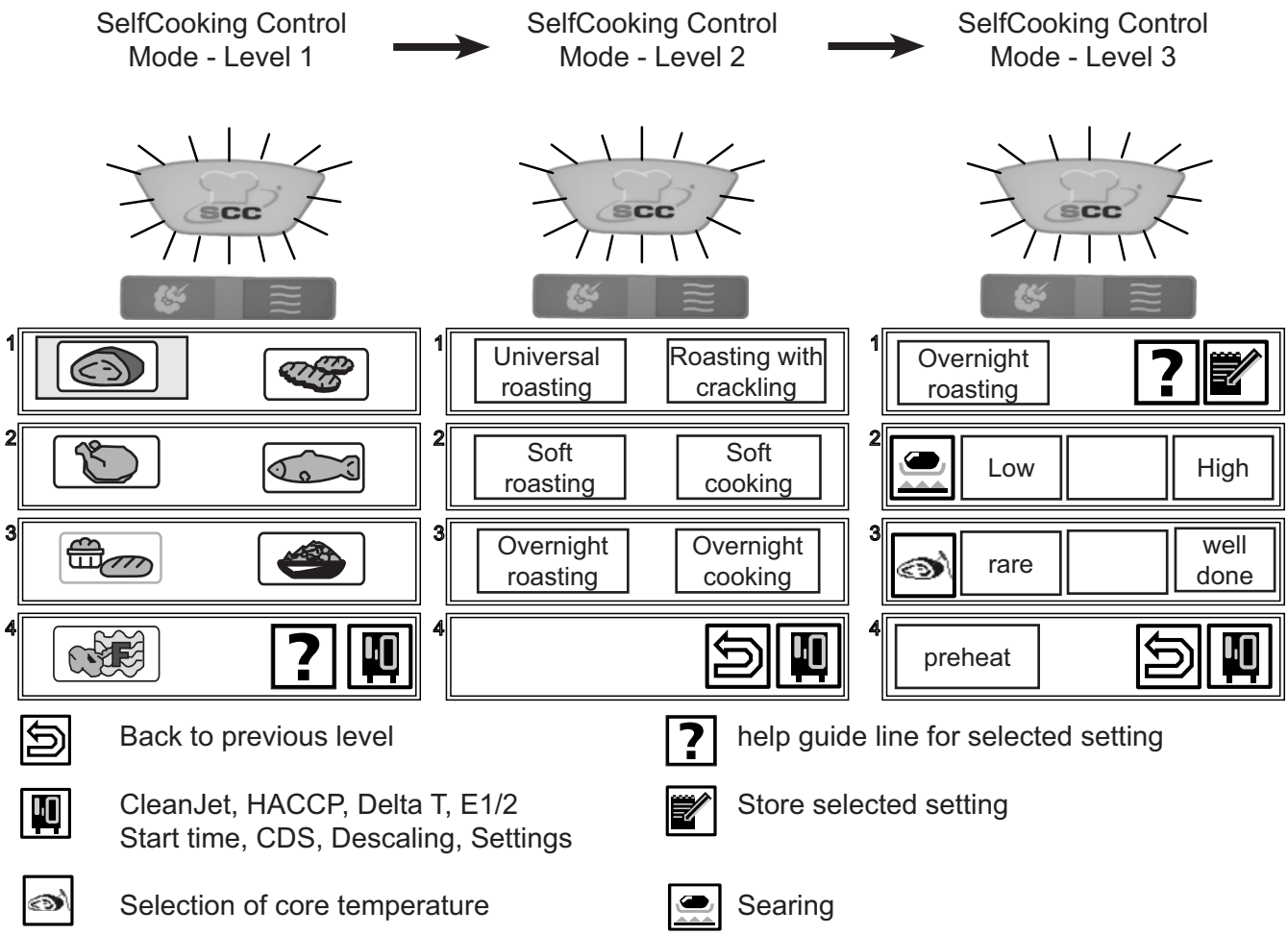
1.) Check the gas type adjustment at "Basic Settings".
2.) Check the given length of the CO_2 screw. See correct values from table above.
3.) Check gas input flow pressure. See correct values from table above.
4.) Select "Gas Steam Blower" at "Function Test". Exhaust temperature should be during the "gas flow analysis" above 200°C.
Carry out first a CO_2 **"Max"** adjustment.
Setting of exhaust values only by CO_2 screw adjustment. CO_2 = see table above, CO = below 300ppm, if possible below 100ppm.
Carry out the CO_2 **"Min"** measurement. At CO_2 **"Min"** measurement **no** adjustment necessary on the CO_2 screw => **! ! ! Check only the CO_2 values ! ! ! !**
Repeat same measurements at "Gas Hot Air Blower Top" and "Gas Hot Air Blower Bottom (201-202)".
5.) Recommendation: Note down all actual values (mm, CO_2, CO) inside the unit. This will help your fellow technician in fault finding!

SCC Control Panel



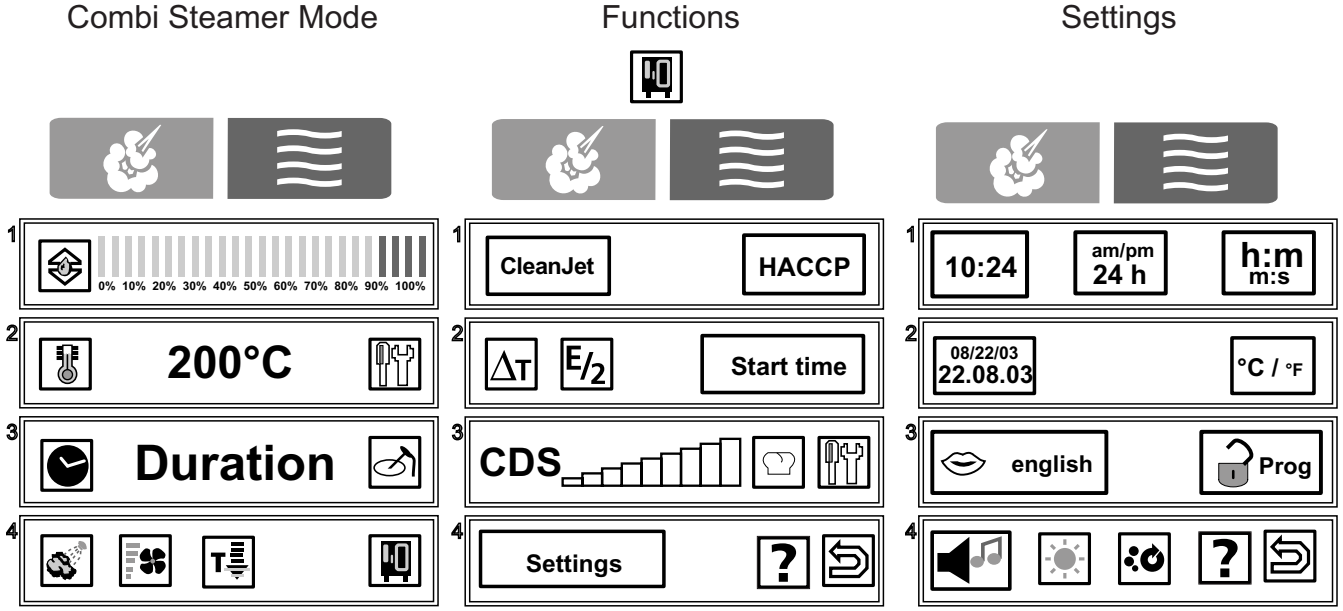
Notes:

Display up to Software version SCC 01-07-12



Notes:

Display up to Software version SCC 01-07-12



Setting of Humidity

Setting of cabinet temperature

Setting of time

Setting of core temperature

Moistening

Setting of fan speed

Cool Down

Setting of : time, Date, time format, °C/°F etc.

Delta -T cooking

1/2 Energy

HACCP Protokol

Telephone Chef-Line

Service

Setting of time format

Setting of time laps

Setting of date format

Setting of °C/°F

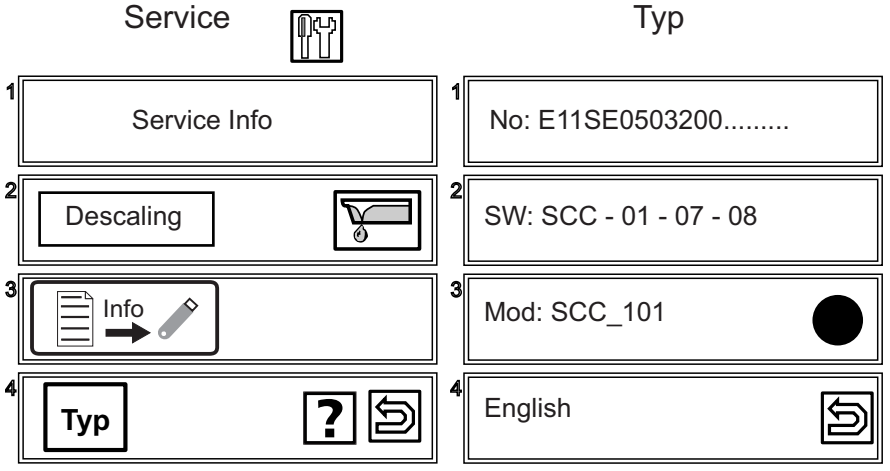
Setting of language

default 12345, SU: ttreu

Setting of buzzer sound

Setting of display intensity

Setting of CleanJet prompting (only active when frame is red)



Service Info: Display of pending service faults

empty steam generator (Door must be open!)

humidity emergency control active

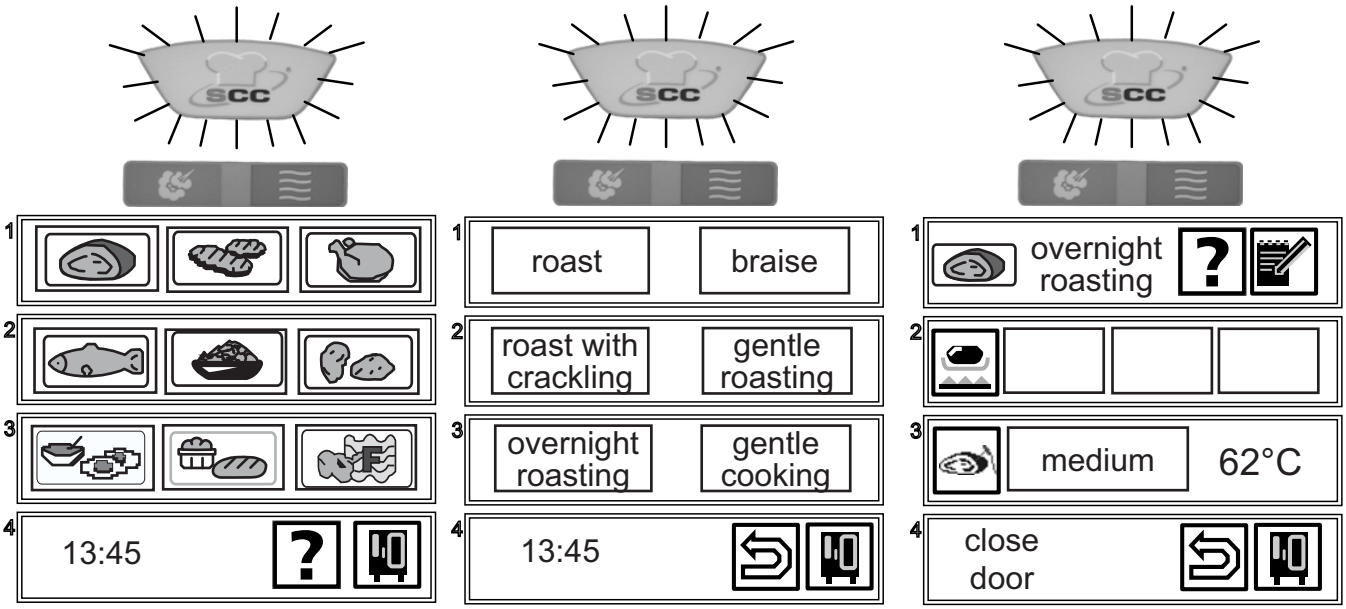
Typ Display Software version

humidity emergency control was active since last switch ON (will not be displayed when in „dry heat mode“)

Info Download of service data to stick.Set DIP-switch 1 to “on” (=activation of diagnostic program). Afterwards touch function key and then service key.

Display since Software version SCC 02-01-01

SelfCooking Control Mode - Level 1 → SelfCooking Control Mode - Level 2 → SelfCooking Control Mode - Level 3



Large roast

Pan fries

Poultry

Fish

Side dishes

ting;practical hints for product to

Back to previous level

CleanJet, HACCP, Delta T, E1/2
Start time, CDS, Descaling, Settings

Selection of core temperature

Potato product

Egg dishes/Desserts

Bakery products

Finishing

Help: guide line for selected set
be used in the respective
SCC cooking process

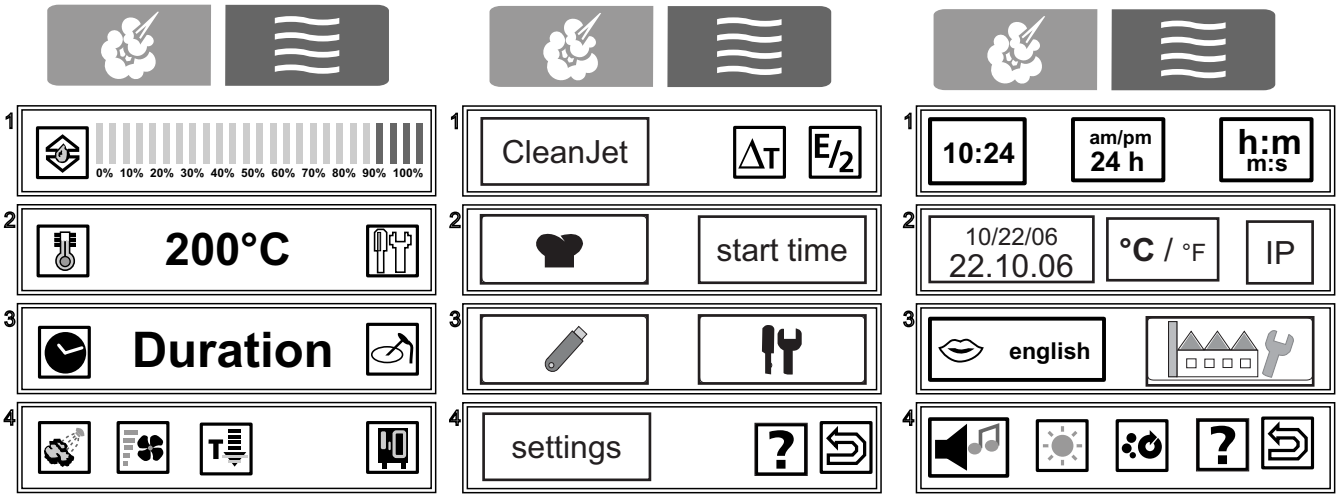
Store selected setting

Searing

Notes:

Display since Software version SCC 02-01-01

Combi Steamer Mode | Functions | Settings

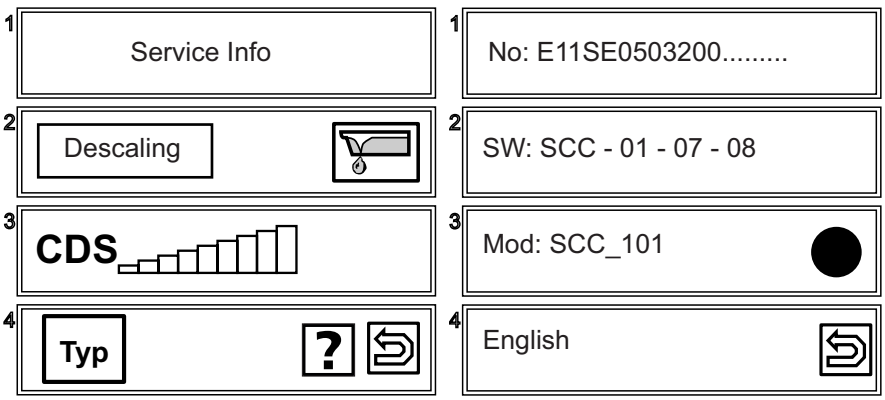


- Setting of Humidity
- Setting of cabinet temperature
- Setting of time
- Setting of core temperature
- Moistening
- Setting of fan speed (lowest level=intermittent)
- Cool Down
- Service key (after setting dip switch #1)

- CleanJet — CleanJet programs
- Function level
- ΔT — Delta -T cooking
- E/2 — 1/2 Energy
- Telephone Chef-Line delete all programs, program lock, buzzer setting, time setting
- Data download (upload): Customer programs HACCP Service data

- am/pm 24 h — Setting of time format
- h:m m:s — Setting of time laps
- 08/22/03 22.08.03 — Setting of date format
- °C / °F — Setting of °C/°F
- english — Setting of language
- reset to factory setting english, °C, buzzer perm.,
- buzzer,
- Setting of buzzer sound
- Setting of display intensity

Service | Typ



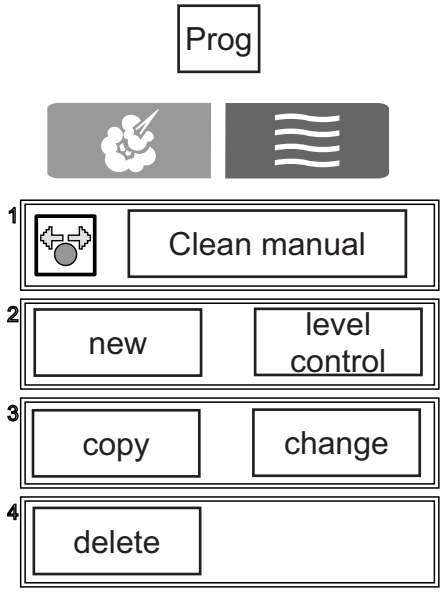
Service Info: Display of pending service faults

CDS — Scale level of steam gen.

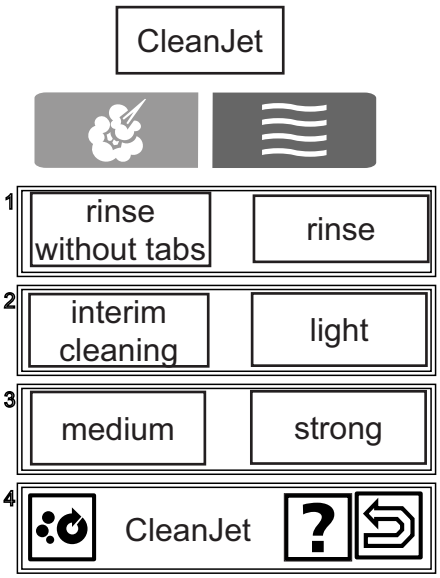
- empty steam generator (Door must be open!)
- Typ — Display Software version
- Info — Download of service data to stick.

- ● humidity emergency control active
- ○ humidity emergency control was active since last switch ON (will not be displayed when in „dry heat mode“)

Display Programming / CleanJet SCC 02-01-01



	select program name with central dial
new	give program name (blank - between _ and @
copy	existing SCC process or program can be copied and get an index number, i.e. 1; name can be edited and changed;
change	Change parameter and / or cooking mode of program in a non-active program; confirm change by:
delete	selected program flashes; confirm delete by pressing again
level control	1. Give program name 2. Store 3. select mode, temperature, time (in minutes and seconds) or core temperature, 4. Second program with identical mode and temperature, but different time can be stored and selected alternating after pre-heating;



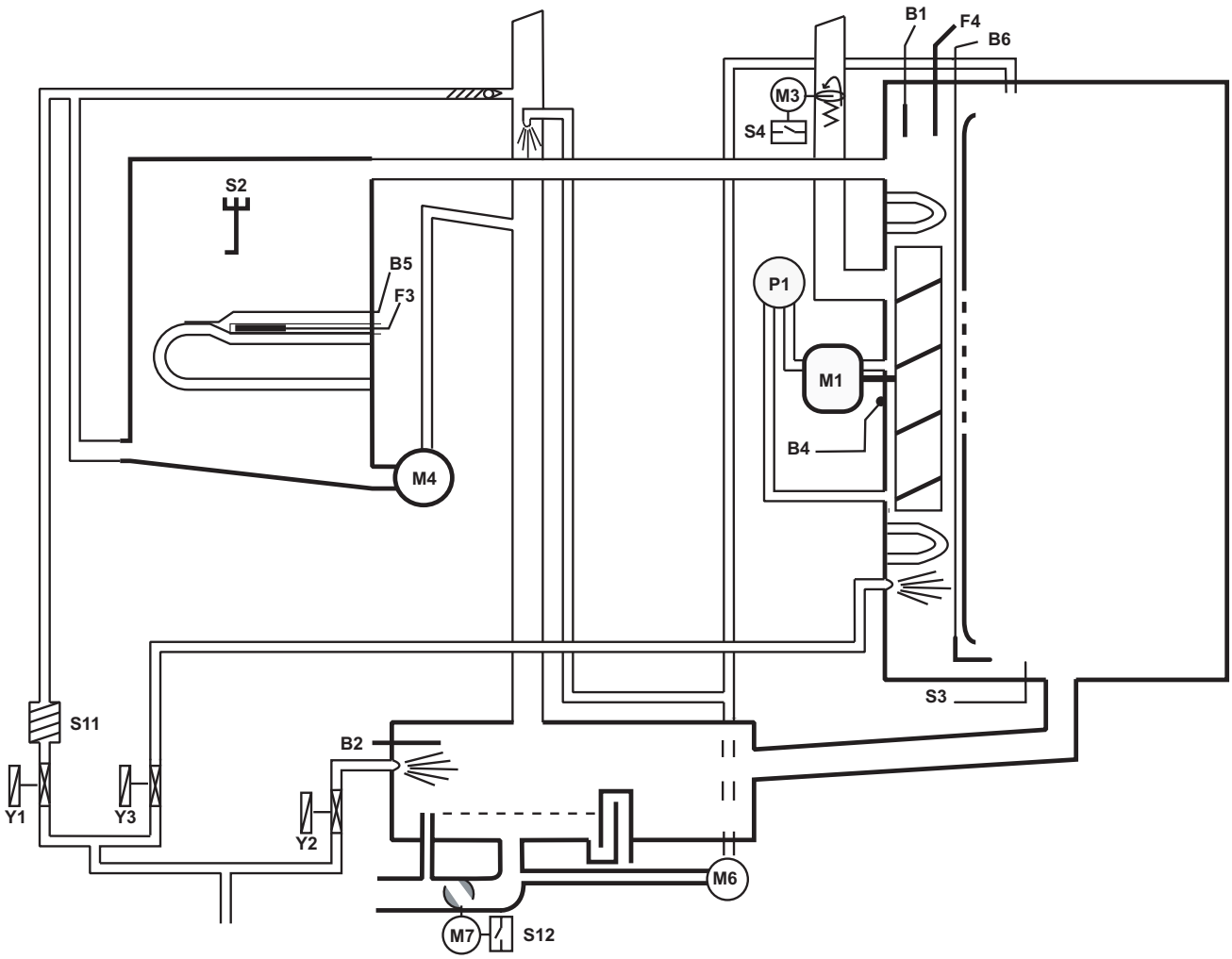
rinse without tabs	Rinse with water only; cabinet will be dried out;
rinse	Rinse with 1 rinse tab for cleaning after steaming
interim cleaning	Rinse with 1 cleaner tab for cleaning in between cooking cycles; no drying of cabinet;
light	Cleaning of light soiling with drying of cabinet
medium	Cleaning of medium soiling with drying of cabinet
strong	Cleaning of strong soiling with drying of cabinet

Note:
Reduce number of detergent tabs when too much foam is visible;

Check direction of water jet inside cabinet when timer is counting up;

Notes:

SCC Electric from 04-2004



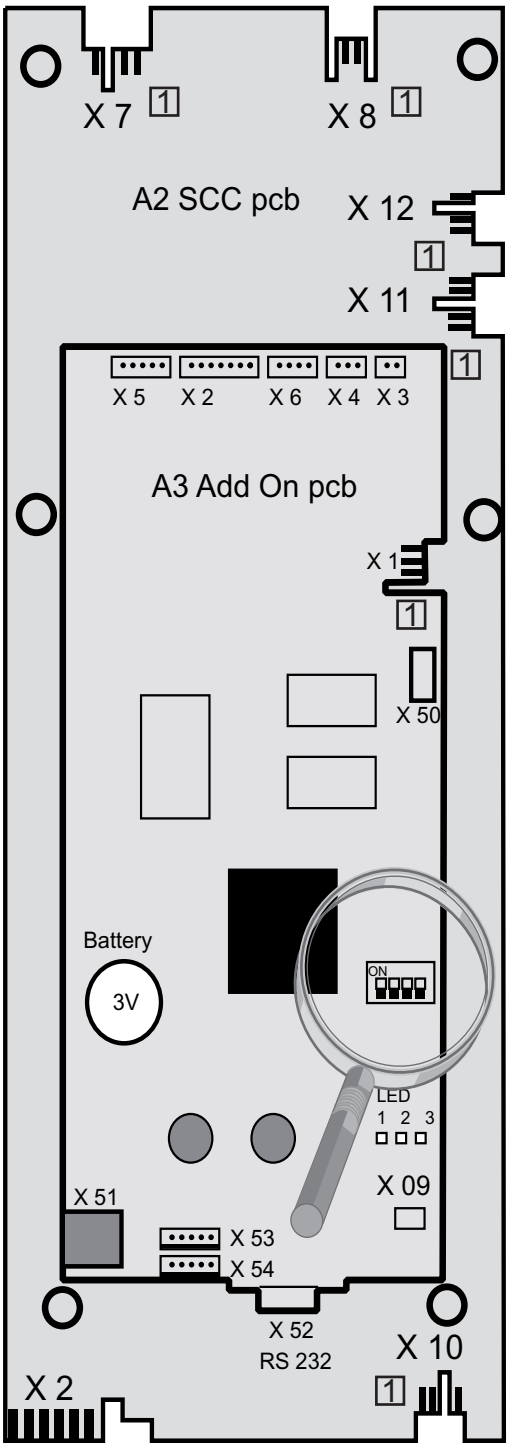
B1	Thermocouple interior cabinet
B2	Thermocouple quenching
B4	Thermocouple humidity
B5	Thermocouple steam generator (preheat, 180°C (356°F) max)
B6-B11	Thermocouples core temperature
F3	Safety thermostat steam generator 160°C (320°F)
F4	Safety thermostat interior cabinet 360°C (680°F)
Y1	Solenoid valve filling
Y2	Solenoid valve quenching
Y3	Solenoid valve moistening
M1	Fan motor bottom
M3	Humidity flap motor
M4	SC-pump
M6	CleanJet pump
M7	Motor drain valve / ball valve
S2	Level electrode
S4	Micro switch humidity motor
S11	CDS sensor
S12	Micro switch drain valve
P1	Pressure sensor humidity

SCC 201/202 only:

M2	Fan motor top with jumper (floor units only)

Notes:

SCC Operator pcb (42.00.002)



X7	200 - 240V input to I/0 Switch
X8	Buzzer
X12	Level electrode
X11	Humidity flap motor / Micro switch
Add on X1	P1 pressure sensor
Add on X2	B6-11 thermocouples core temperature
Add on X3	B1 thermocouple interior cabinet
Add on X4	B2 thermocouple quenching
Add on X5	B4 thermocouple humidity
Add on X6	B5 thermocouple steam generator
Add on X50	External EEPROM
Add on X51	BUS interface and power supply for cpu from I/O pcb
Add on X52	RS232 interface
Add on X53	USB interface (only until 11/2005)
Add on X54	USB interface
Add on X09	Central dial
X10	Power suply for display 2,5 - 0 - 2,5V (X10 indicated as X1 on pcb layout)
X2	Free
1	Counting sequence

Note: LED code: SCC PCB

Green LED on - ok;

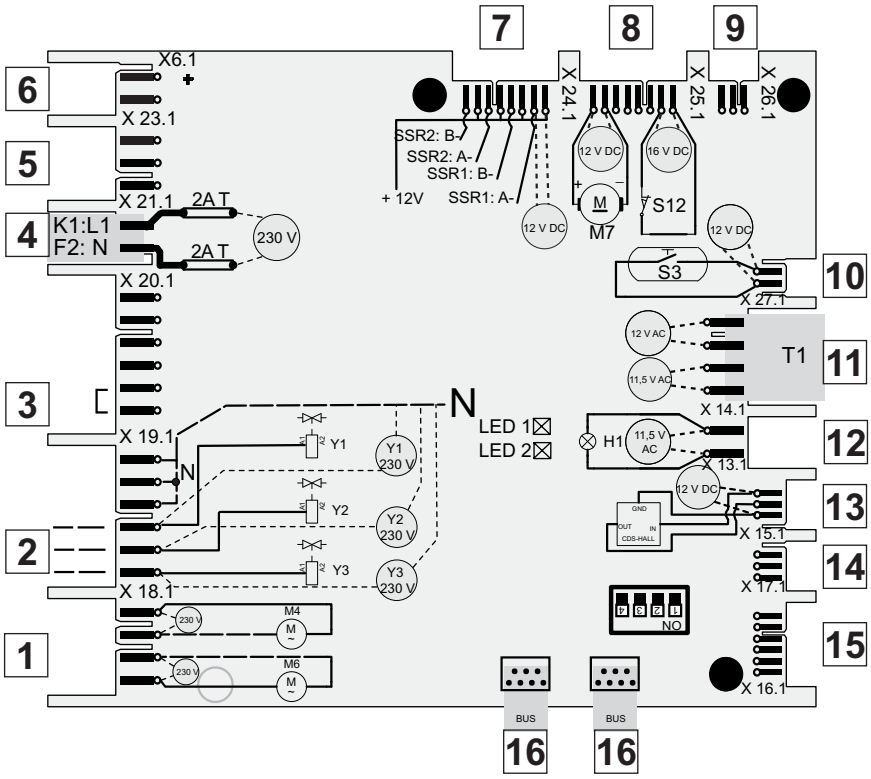
Red LED blinks 1x during re-booting when switching on - ok

Green LED - off: Bus cable defective; CPU defective; I/O pcb or transformer defective

Red LED on: CPU defective

Red LED doesn‘t blink during re-booting when switching on - CPU defective

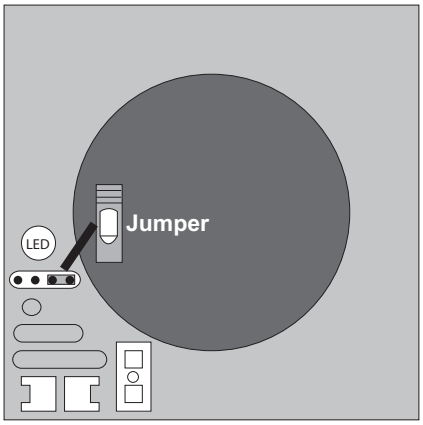
I/O PCB SCC (40.00.049)
Wires of pcb edge connectors are pointing to component side of pcb!



1:	SC-pump M4, Cleanjet pump M6
2:	Solenoid vales Y1-filling, Y2 - quenching, Y3 - moistening
3.	Energy optimizing plug with link on 5-6 used only on I/O pcb with 6 relais card! Please refer to Technical Info 16-2005
4.	230V input
5	Connection to Ultravent (used for Ultravent <u>without</u> BUS connection only)
6.	free
7.	Output 12VDC to SSR
8.	Output 12VDC to M7 drain valve, S12 micro switch drain valve
9.	SSR pulsing (US-CAN version only)
10.	Output 12VDC to door contact
11.	Input from Control transformer T1, 11.5V interior light, 12V CPU,
12.	Output 11.5VAC to interior cabinet light
13.	Output 12VDC to CDS sensor
14.	free
15.	free
16.	BUS connection

LED code: I/O PCB
Green LED on - ok;
Yellow LED blinks during re-booting but is off during operation - ok
Yellow LED blinks always: Set DIP switches to OFF position; Bus cable defective;
Green LED off: I/O pcb defective; transformer defective

Motor for CM 40.00.274



Jumper 40.01.581 is used on floor model 201 and 202 for top position motor only!

Jumper is not used on models 61 - 102 with one motor only! (Service 34 will be shown!)

LED code fan motor SCC and CM from 04/2004

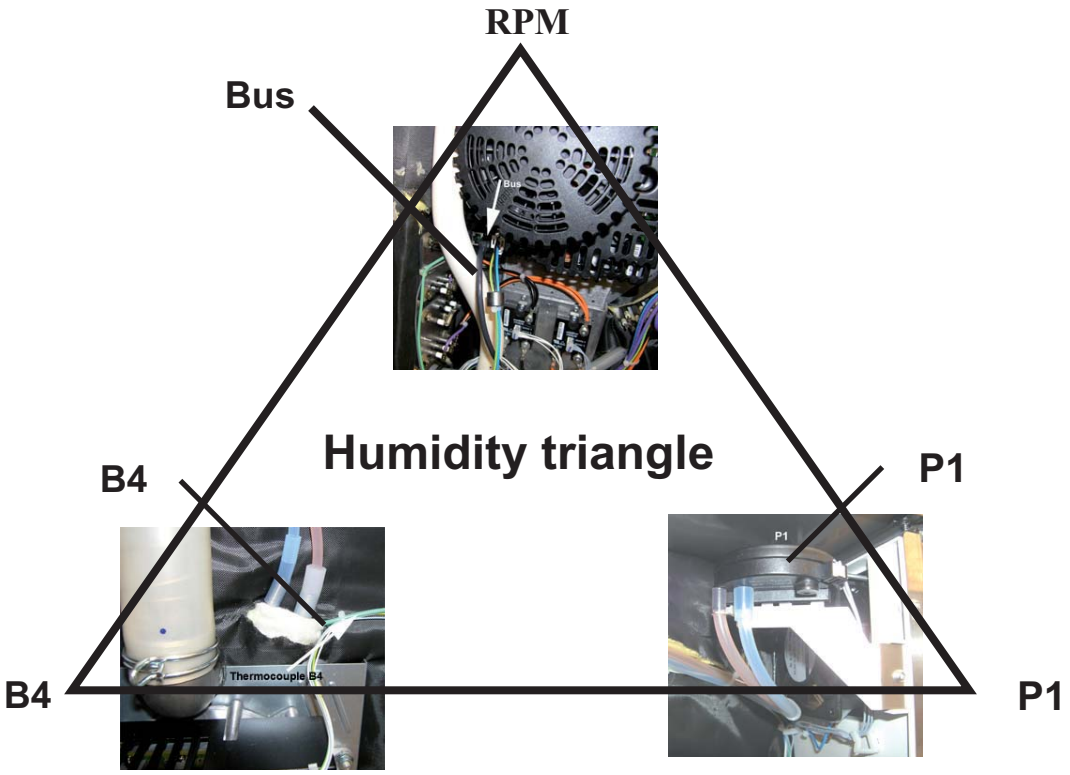
	Reason	Remedy
1x	Motor doesn't start, no changing signal from hallsensor	Check for motor blockage or change motor.
2x	Voltage too low on motor pcb	Check supply voltage or change motor.
3x	Voltage too high on motor pcb	Check supply voltage or change motor.
4x	rpm measurement defective	Change motor.
5x	Motor pcb temperature >105°C	Check cooling system (cooling fan, air intake filter), otherwise change motor
6x	Supply voltage <80V	Check power supply (F1-F2)
7x	Motor pcb defective	Change motor.
8x	Motor pcb defective	Change motor.

Humidity control SCC

The calculated humidity inside the cabinet is based on:

1. RPM signal of the fan motor (via BUS signal)
2. Temperature B4 (thermocouple behind motor mounting plate)
3. Voltage output signal P1 (depending on fan motor speed and humidity)

Die Offsetspannung P1 (Motor im Stillstand) liegt bei ca. 0.45 - 0.55V



Basic rule:
Voltage output of P1 is high when cabinet clima is dry;
Voltage output of P1 is high when main fan speed is high;

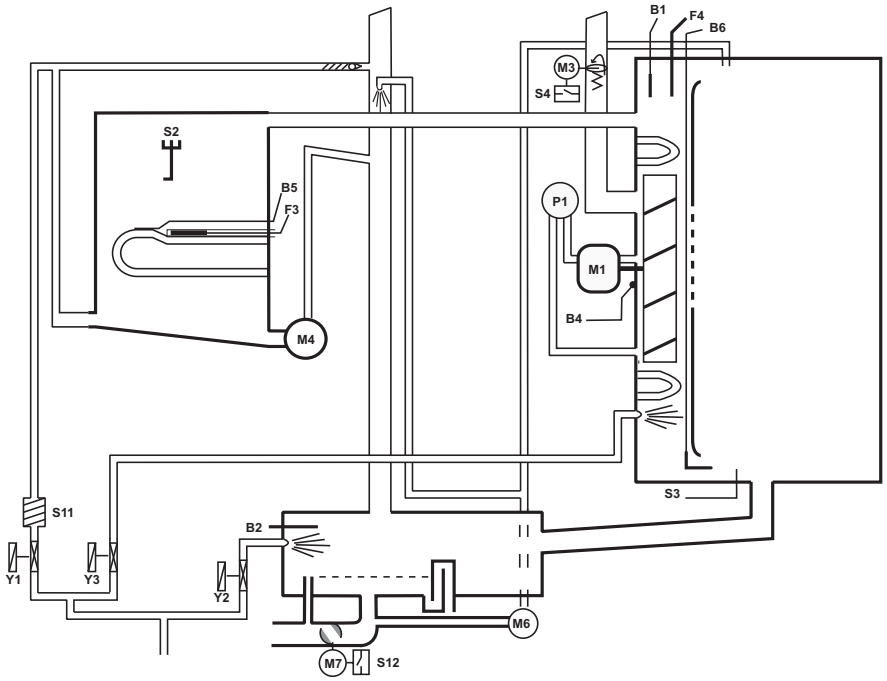
Example: SCC 101 E

RPM	P1 (ca Volt)		Clima FA (ca value in Pascal) (given values only as example)
Calibration speed 500rpm	Dry	1,1	102099
	Wet	0,7	106344
	Combi	0,6	118160
Calibration speed 1250rpm	Dry	2.3	102174
	Wet	1.7	102131
	Combi	1.5	108239
Calibration speed 1800rpm	Dry	2.9	102679
	Wet	2.4	103263
	Combi	1.9	106705
Calibration speed 1900rpm	Dry	3,1	103077
	Wet	2.5	102907
	Combi	2.2	106222

Notes:

SCC - Sequence of events

SCC mode: Wet Heat
98-103°C (208-218°F) set temperature



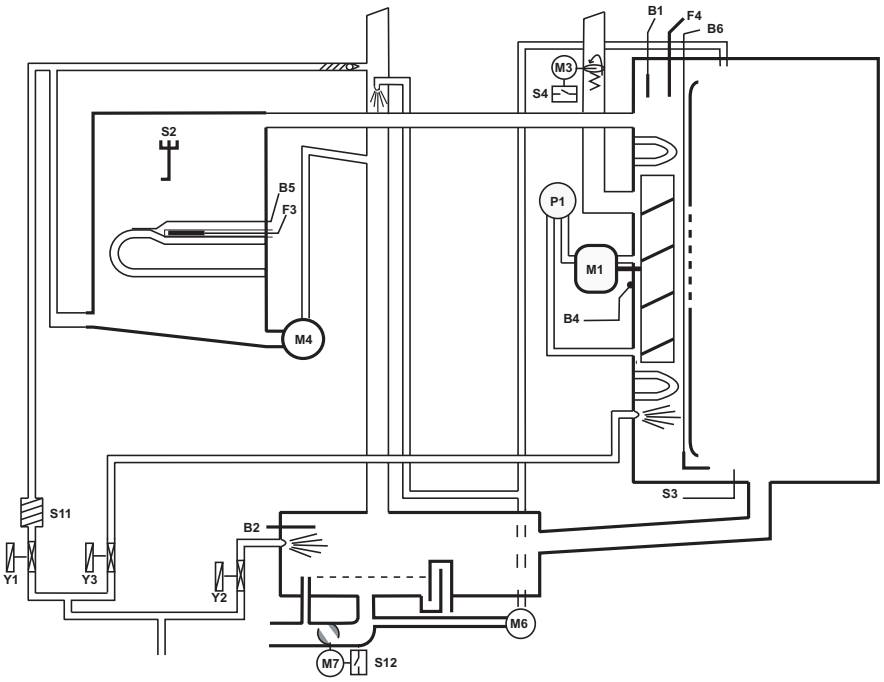
Function step	Responsible sensor
1. Select Wet heat (Temp 98-103°C (208-218°F))	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Gen.
5. Preheat steam generator,; if B5 is below 85°C (185°F)	Thermocouple B5 inside Steam Gen.
6. Timer starts after successful preheating	Logic on PCB
7. Steam production up to saturation in cabinet	Pressure sensor P1, Thermocouple B4 rpm motor via BUS
8. Adding of Hot Air from 70°C (158°F) possible, if 70% humidity reached	Cabinet sensor B1
9. Quenching (set to 70°C/158°F)	Thermocouple B2

Additional functions possible: 4 Fan speeds (Standard = Level 4), pulsed fan wheel, ½ Energy, HACCP output, ΔT

Note:
Steam heating only active when humidity flap (S4) is in closed position!
Steam saturation means: temperature of B2 ~ B1

SCC - Sequence of events

SCC mode: Low temperature steam;
(30-97°C (85-207°F), set temperature)



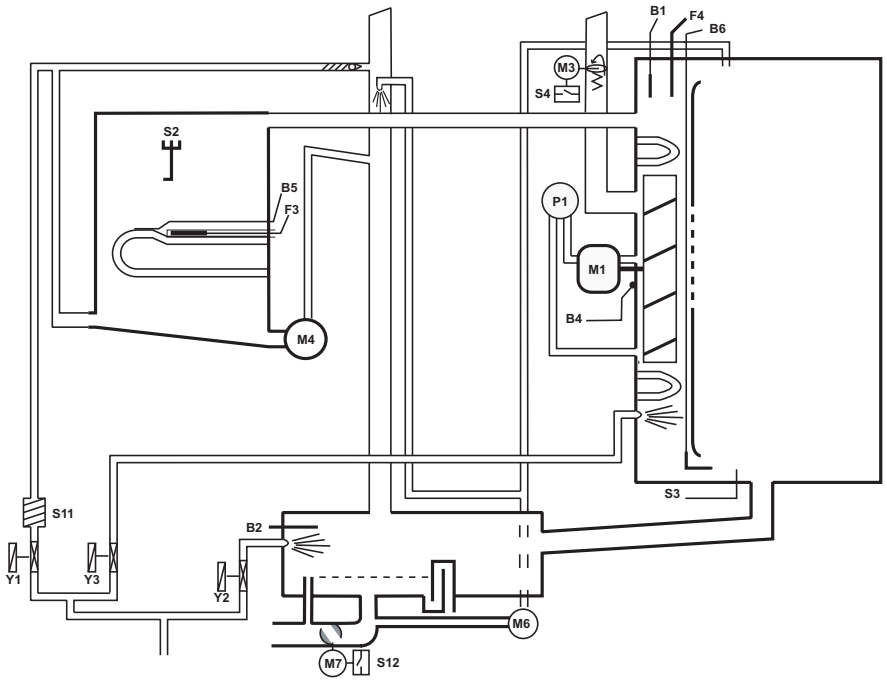
Function step	Responsible sensor
1. Select Wet heat (Temp 30-97°C (85-207°F))	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Gen.
5. Preheat steam generator,; if B5 is below 85°C (185°F)	Thermocouple B5 inside Steam Gen.
6. Timer starts after successful preheating	Logic on PCB
7. Steam supply until set temperature inside cabinet is reached	Cabinet sensor B1
8. Adding of Hot Air from 93°C (200°F) possible (only 50%)	Cabinet sensor B1
9. Quenching (set to 70°C/158°F)	Thermocouple B2

Additional functions possible: 4 Fan speeds (Standard = Level 4), pulsed fan wheel, ½ Energy, HACCP output, ΔT

Note:
Steam heating only active when humidity flap (S4) is in closed position!
Below 98°C fan at lowest speed when no energy required for longer than 2 minutes.

SCC - Sequence of events

SCC mode: Forced Steam
104-130°C (219-266°F), set temperature



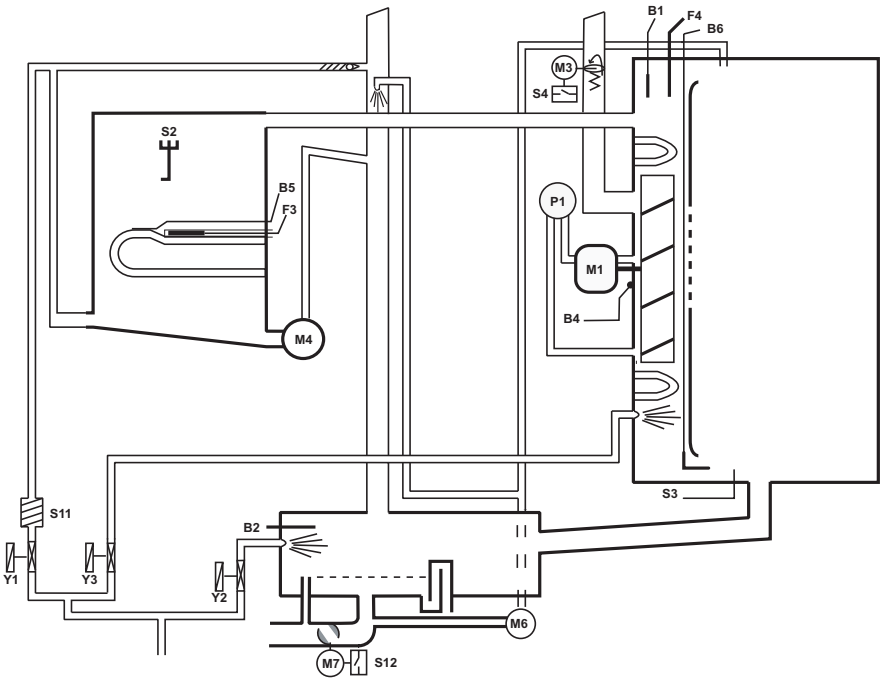
Function step	Responsible sensor
1. Select Wet heat (Temp 104-130°C (219-266°F))	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Gen.
5. Preheat steam generator,; if B5 is below 85°C (185°F)	Thermocouple B5 inside Steam Gen.
6. Timer starts after successful preheating	Logic on PCB
7. Steam supply until set temperature inside cabinet is reached	Pressure sensor P1, Thermocouple B4 rpm motor via BUS
8. Adding of Hot Air if 85% humidity reached	Cabinet sensor B1
9. Quenching (set to 70°C/158°F)	Thermocouple B2

Additional functions possible: 4 Fan speeds (Standard = Level 4), pulsed fan wheel, ½ Energy, HACCP output, ΔT

Note:
Steam heating only active when humidity flap (S4) is in closed position!

SCC - Sequence of events

SCC mode: Mode: Combi Steam
141-300°C (286-572°F), set temperature



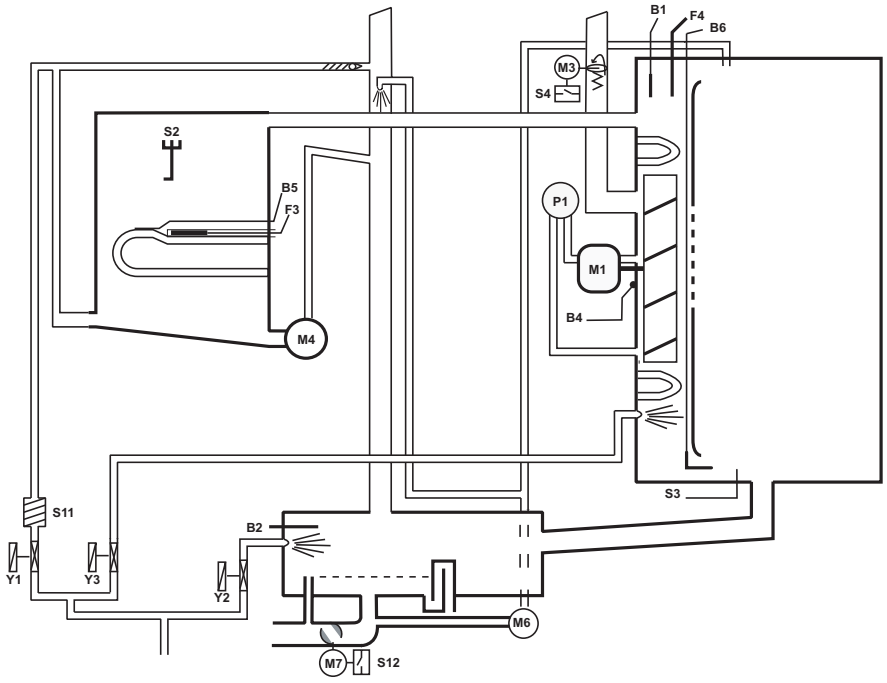
Function step	Responsible sensor
1. Select Wet heat and Dry heat 141-300°C (286-572°F), set temperature	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Gen.
5. Preheat steam generator,; if B5 is below 85°C (185°F)	Thermocouple B5 inside Steam Gen.
6. Timer starts after successful preheating	Logic on PCB
7. Heat up cabinet with Hot Air until set temperature. is reached **Priority Hot Air**	Cabinet sensor B1
8. Adding of steam up to set steam saturation	Pressure sensor P1, Thermocouple B4 rpm motor via BUS
9. Quenching (set to 70°C/158°F)	Thermocouple B2

Additional functions possible: 4 Fan speeds (Standard = Level 4), pulsed fan wheel, ½ Energy, HACCP output, ΔT

Note:
Steam heating only active when humidity flap (S4) is in closed position!

SCC - Sequence of events

SCC mode: Finishing
(30°-140°C (85-284°F), set temperature



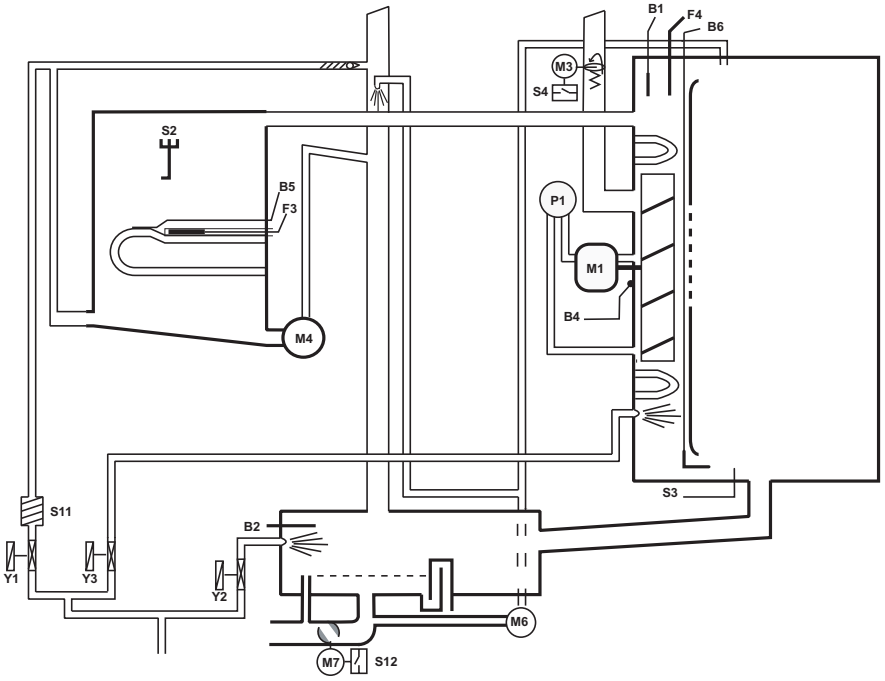
Function step	**Responsible sensor**
1. Select Wet and Dry heat (Temp. 30-140°C, 85-284°F)	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Check water level inside steam generator	Level electrode S2 inside Steam Gen.
5. Preheat steam generator,; if B5 is below 85°C (185°F)	Thermocouple B5 inside Steam Gen.
6. Timer starts after successful preheating	Logic on PCB
7. Steam supply up to set humidity Electric: 8sec on / off Gas: 20 sec on / off	Pressure sensor P1, Thermocouple B4 rpm motor via BUS
8. Hot air supply up to set temperature Electric: 8sec on / off Gas: 20 sec on / off	Cabinet sensor B1
9. Quenching (set to 70°C/158°F)	Thermocouple B2

Additional functions possible: 4 Fan speeds (Standard = Level 4), pulsed fan wheel, ½ Energy, HACCP output, ΔT

Note:
Steam heating only active when humidity flap (S4) is in closed position!
Below 98°C fan at lowest speed when no energy required for longer than 2 minutes.

SCC - Sequence of events

SCC mode: Mode: Dry heat
30°-300°C (86-572°F), set temperature



Function step	Responsible sensor
1. Select Dry heat Temp. 30-300°C (86-572°F)	
2. Select time or core temperature	
3. Close cabinet door	Reed switch S3
4. Timer starts counting down	Logic on PCB
5. Heat up cabinet with Hot Air until set temperature	Cabinet sensor B1
9. Quenching (set to 90°C/194°F)	Thermocouple B2

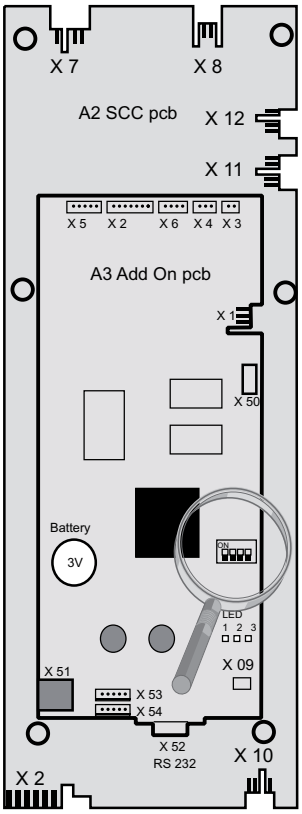
Additional functions possible: 4 Fan speeds (Standard = Level 4), pulsed fan wheel, ½ Energy, HACCP output, ΔT

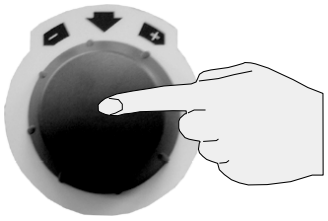
Note:
Steam heating only active when humidity flap (S4) is in closed position!
Below 98°C fan at lowest speed when no energy required for longer than 2 minutes.

Humidity control evaluates permanently the humidity which is generated by the food items inside the cabinet. If needed, humidity motor M3 opens the flap until the set humidity is reached again.

Notes:

Service level SCC





A) Switch on unit

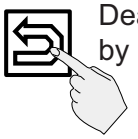
B) Set DIP 1 on operator PCB to „“ON““ position

C) Press service key

D) On the displays the following available Service - modules will be shown

Window 1	1 Diagnostic
Window 2	2 Running Times
Window 3	3 Basic Settings
Window 4	4 Function Test

E) Activate selected service module by push on display or push on central dial

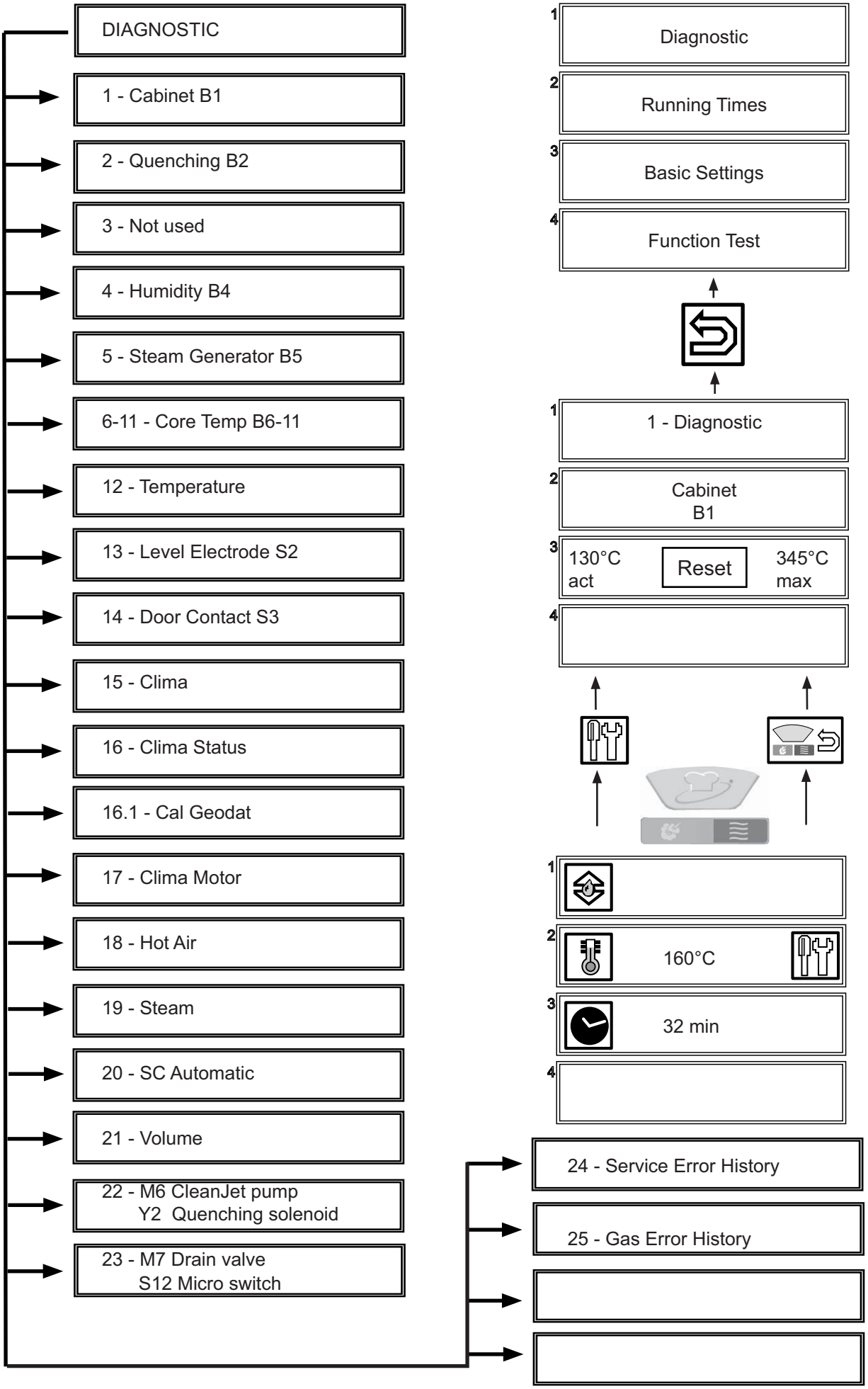
F)  Deactivate selected service module by pushing on “return“ symbol

G) Set DIP 1 on operator PCB to “OFF“ position to deactivate Service level

Starting with software version 01-07-02 gas related information is not shown on electric units!

Notes:

SCC Diagnostic Mode

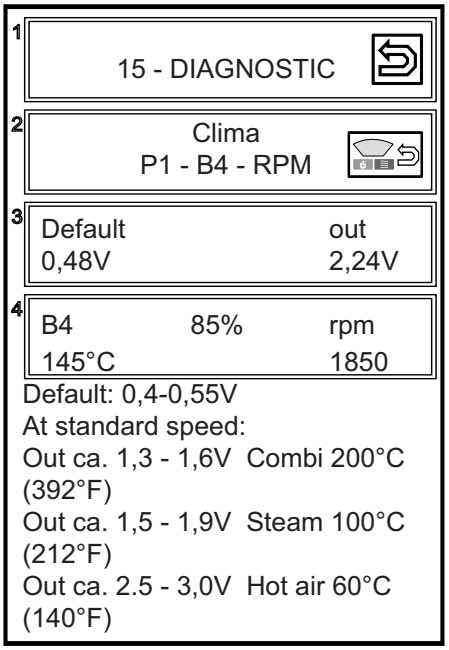


SCC Diagnostic Mode

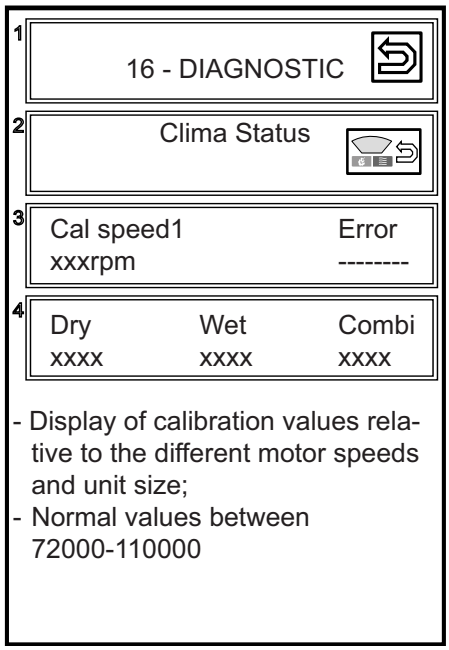
1 - DIAGNOSTIC	2 - DIAGNOSTIC	3 - DIAGNOSTIC
Cabinet B1	Quenching B2	Not used B3
130°C act / Reset / 345°C max“	70°C act / Reset / 95°C max“	900°C / Reset / 900°C
- Temp. range: -30 - 340°C (-22 - 644°F) - 900°C (655°C until SW version 01-07-08) broken thermocouple or loose plug - to reset max value press RESET	- Temp. range: -30 - 340°C (-22 - 644°F) - 900°C (655°C until SW version 01-07-08) broken thermocouple or loose plug - to reset max value press RESET	B3 not used. No function

4 - DIAGNOSTIC	5 - DIAGNOSTIC	6 - 11 - DIAGNOSTIC
Humidity B4	Steam Generator B5	Core Temp B6 - B11
130°C act / Reset / 345°C max“	104°C act / Reset / 115°C max“	130°C act / Reset / 305°C max“
- Temp. range: -30 - 340°C (-22 - 644°F) - 900°C (655°C until SW version 01-07-08) broken thermocouple or loose plug - to reset max value press RESET	- Temp. range: -30 - 340°C (-22 - 644°F) - 900°C (655°C until SW version 01-07-08) broken thermocouple or loose plug - to reset max value press RESET	- Temp. range: -30 - 340°C (-22 - 644°F) - 900°C (655°C until SW version 01-07-08) broken thermocouple or loose plug - to reset max value press RESET

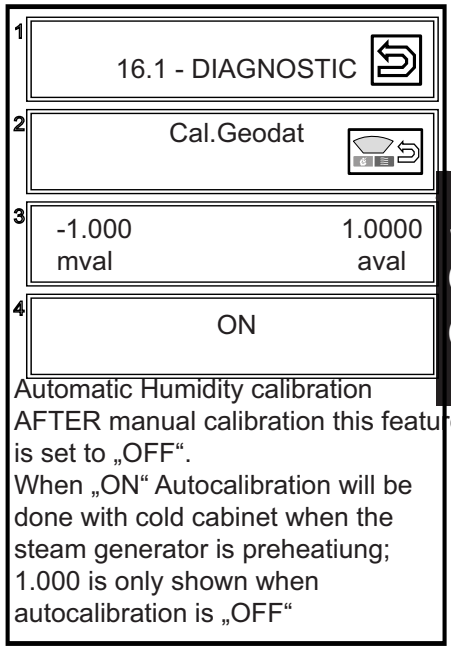
12 - DIAGNOSTIC	13 - DIAGNOSTIC	14 - DIAGNOSTIC
Temperature PCB	Level Electrode S2	Door Contact S3
130°C act / Reset / 345°C max“	S2 1 - 0 Y1 0 - 1	1 - 0
- Temp. range: -30 - 85°C (-22 - 185°F) - to reset max value press RESET (keep pressed until value is re-seted) - above 75°C (167°F) warning on window #4 => **clean air filter** - above 85°C (185°F) => **Service 29**	S2 = 1 => Water level reached S2 = 0 => Water level too low Y1 = 0 => Filling solenoid not active Y1 = 1 => Filling solenoid active	1 - door closed 0 - door open



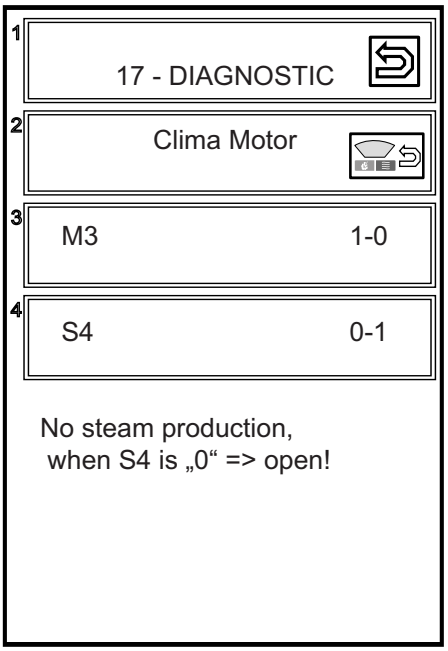
Default: 0,4-0,55V
At standard speed:
Out ca. 1,3 - 1,6V Combi 200°C (392°F)
Out ca. 1,5 - 1,9V Steam 100°C (212°F)
Out ca. 2.5 - 3,0V Hot air 60°C (140°F)



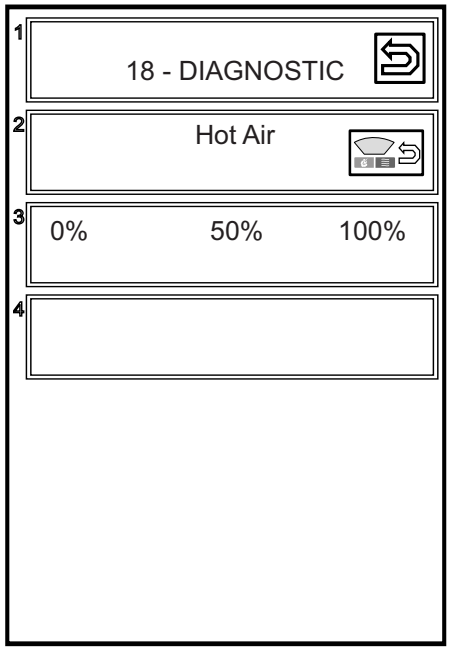
- Display of calibration values relative to the different motor speeds and unit size;
- Normal values between 72000-110000

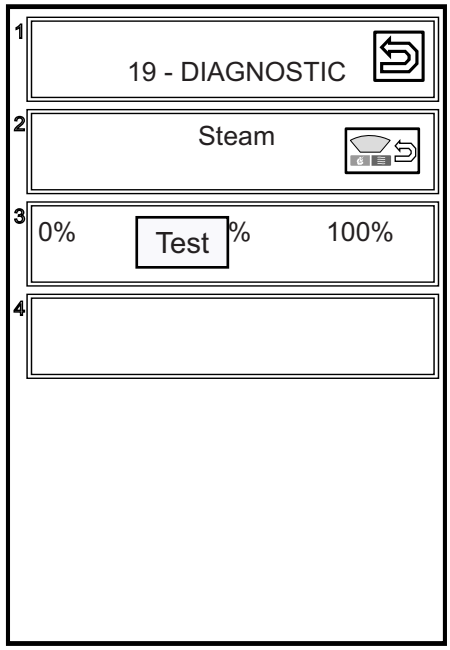


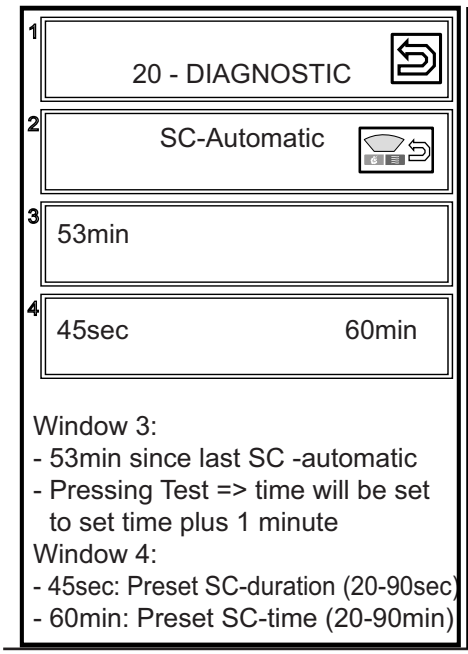
Automatic Humidity calibration AFTER manual calibration this feature is set to „OFF“.
When „ON“ Autocalibration will be done with cold cabinet when the steam generator is preheatiung;
1.000 is only shown when autocalibration is „OFF“



No steam production,
when S4 is „0“ => open!

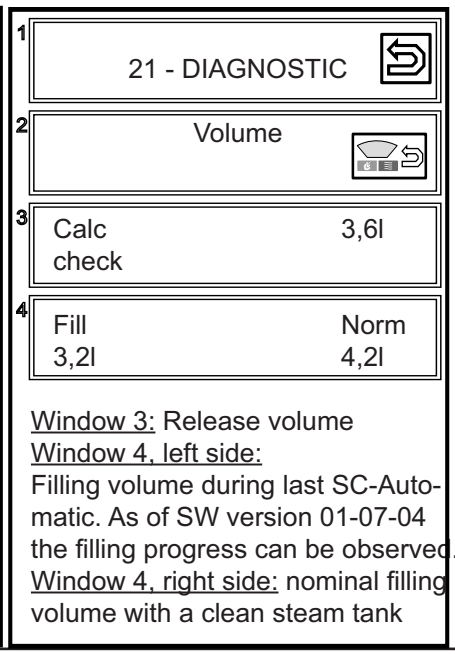




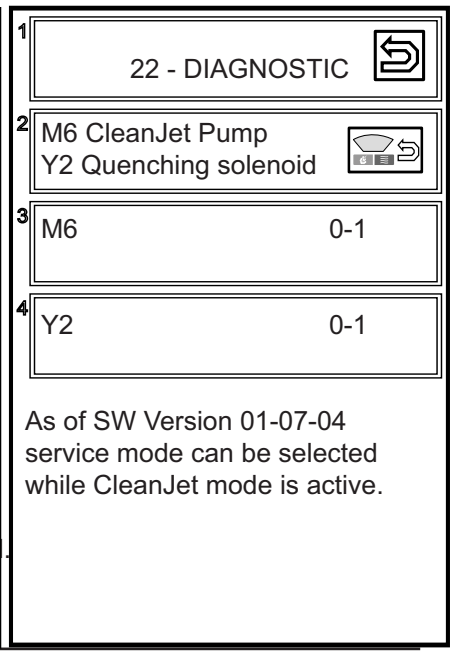


Window 3:
- 53min since last SC -automatic
- Pressing Test => time will be set to set time plus 1 minute

Window 4:
- 45sec: Preset SC-duration (20-90sec)
- 60min: Preset SC-time (20-90min)



Window 3: Release volume
Window 4, left side:
Filling volume during last SC-Automatic. As of SW version 01-07-04 the filling progress can be observed.
Window 4, right side: nominal filling volume with a clean steam tank



As of SW Version 01-07-04 service mode can be selected while CleanJet mode is active.

SCC Diagnostic Mode

1	23 - DIAGNOSTIC	
2	M7 Drain valve motor S12 micro switch	
3	M7	0-1
4	S12	1-0

As of SW Version 01-07-04 service mode can be selected while CleanJet mode is active.

1	24 - DIAGNOSTIC	
2	Service error history	
3	i.e. (1) Service 10	
4		

- since software version 01-07-09

Indication of the last 10 stored service error messages

(see Service error message list page 72-75)

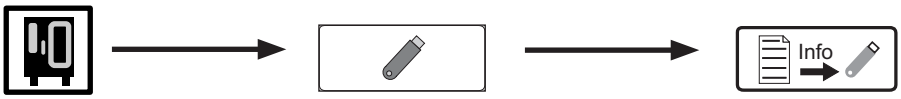
1	25 - DIAGNOSTIC	
2	Gas error history	
3	Gas 1	
4	0: 09:10.05 9:17 32	

- since software version 01-07-09

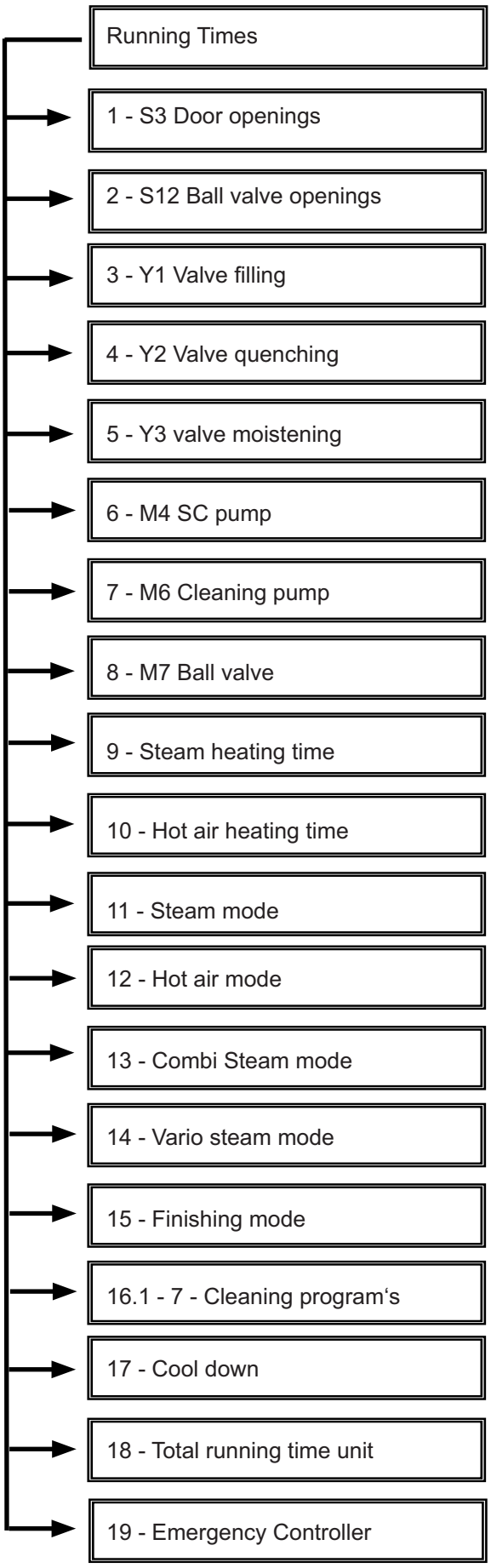
Indication of the last 16 stored ignition box error messages including date and time.
0= ignition box top
1= ignition box bottom

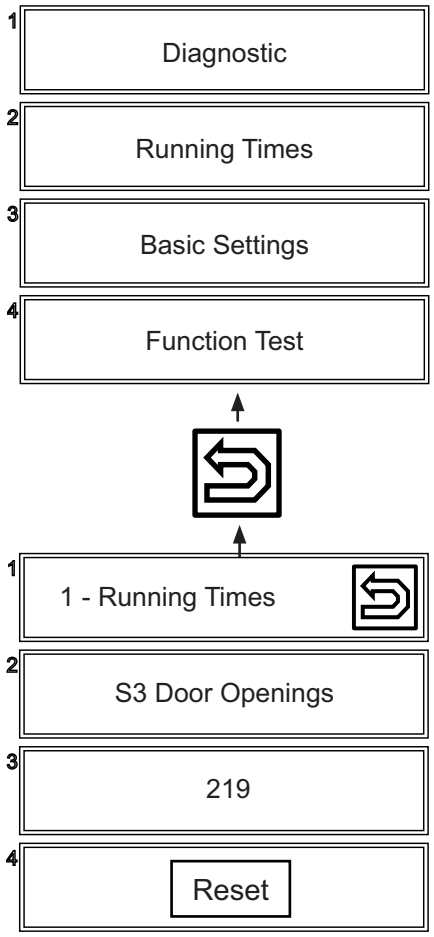
Only starting with Software version 01-07-09 the entire information of the service level can be downloaded to memory stick when DIP switch 1 is set to „1“.

SInce Software version 02-01-01 the service package can be downloaded by the customer without setting the dip switch
using the function key followed by pressing the USB key and Info key.

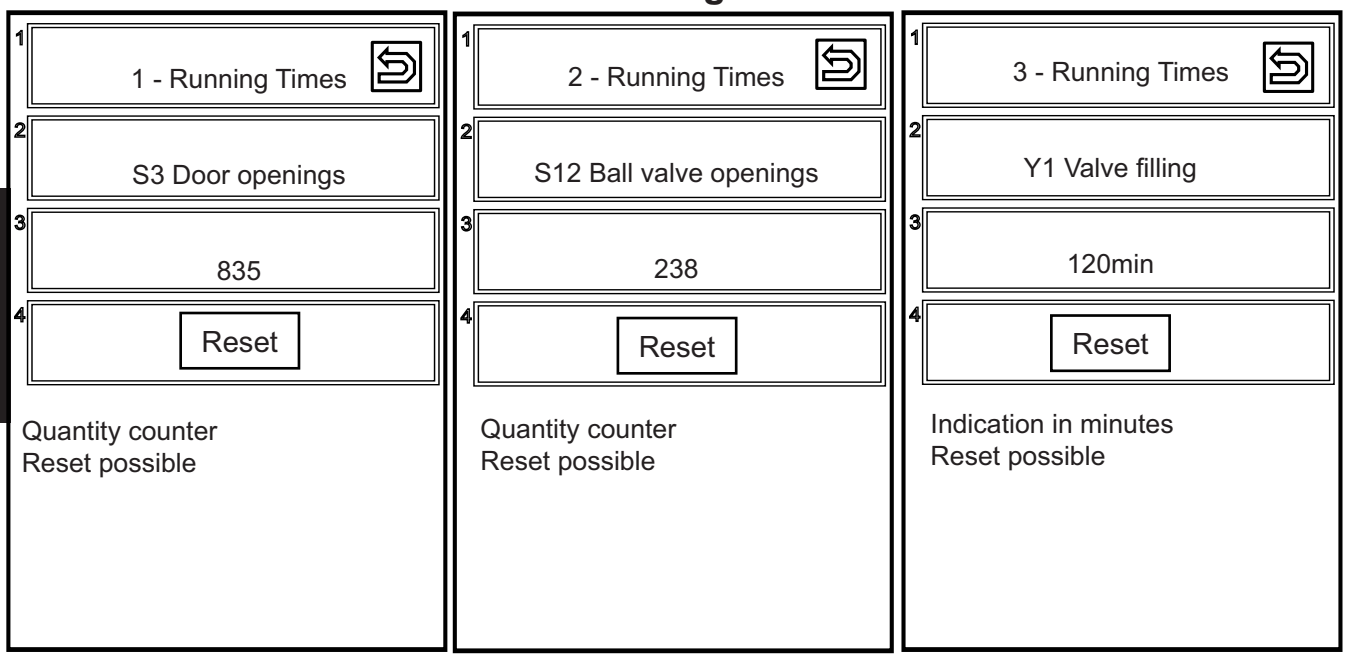


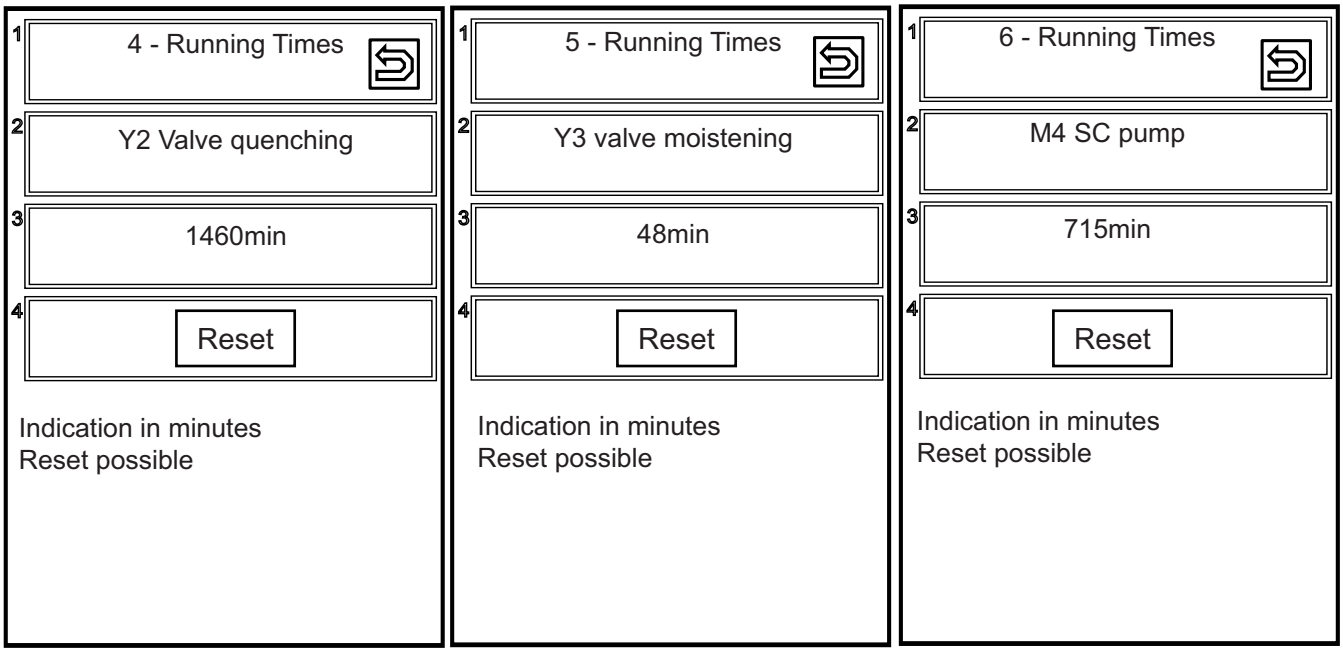
SCC Running Times

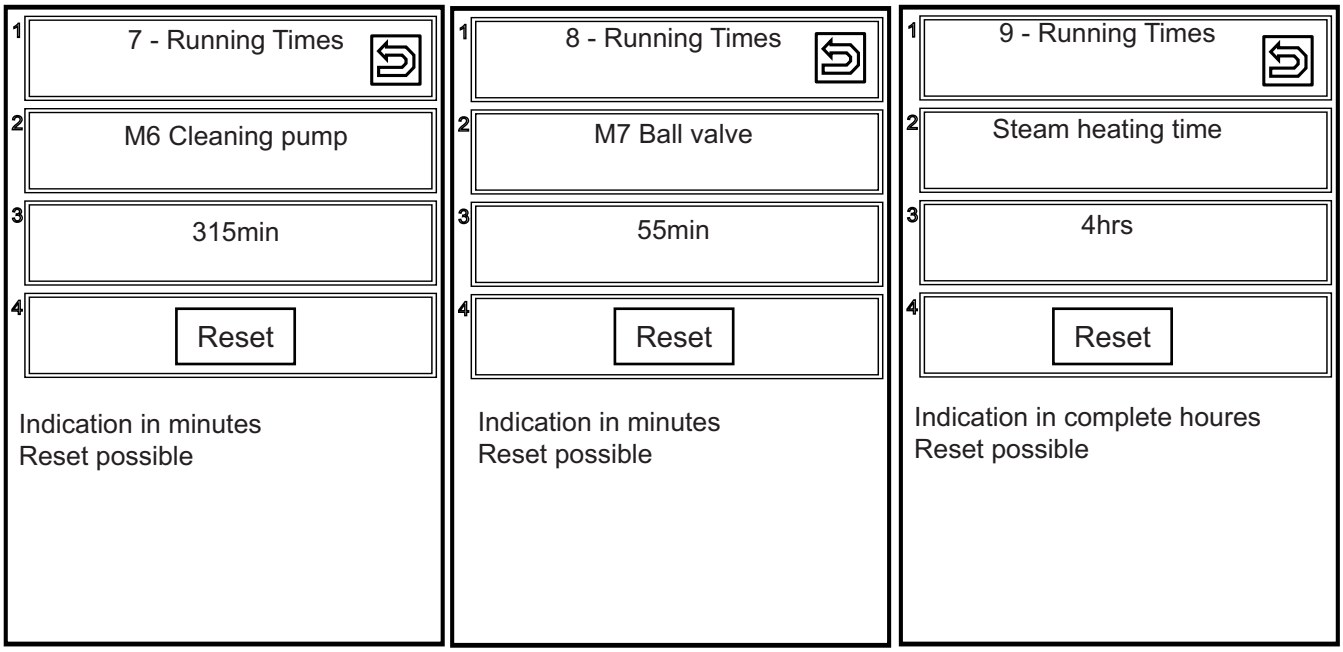

Running Times
1 - S3 Door openings
2 - S12 Ball valve openings
3 - Y1 Valve filling
4 - Y2 Valve quenching
5 - Y3 valve moistening
6 - M4 SC pump
7 - M6 Cleaning pump
8 - M7 Ball valve
9 - Steam heating time
10 - Hot air heating time
11 - Steam mode
12 - Hot air mode
13 - Combi Steam mode
14 - Vario steam mode
15 - Finishing mode
16.1 - 7 - Cleaning program‘s
17 - Cool down
18 - Total running time unit
19 - Emergency Controller



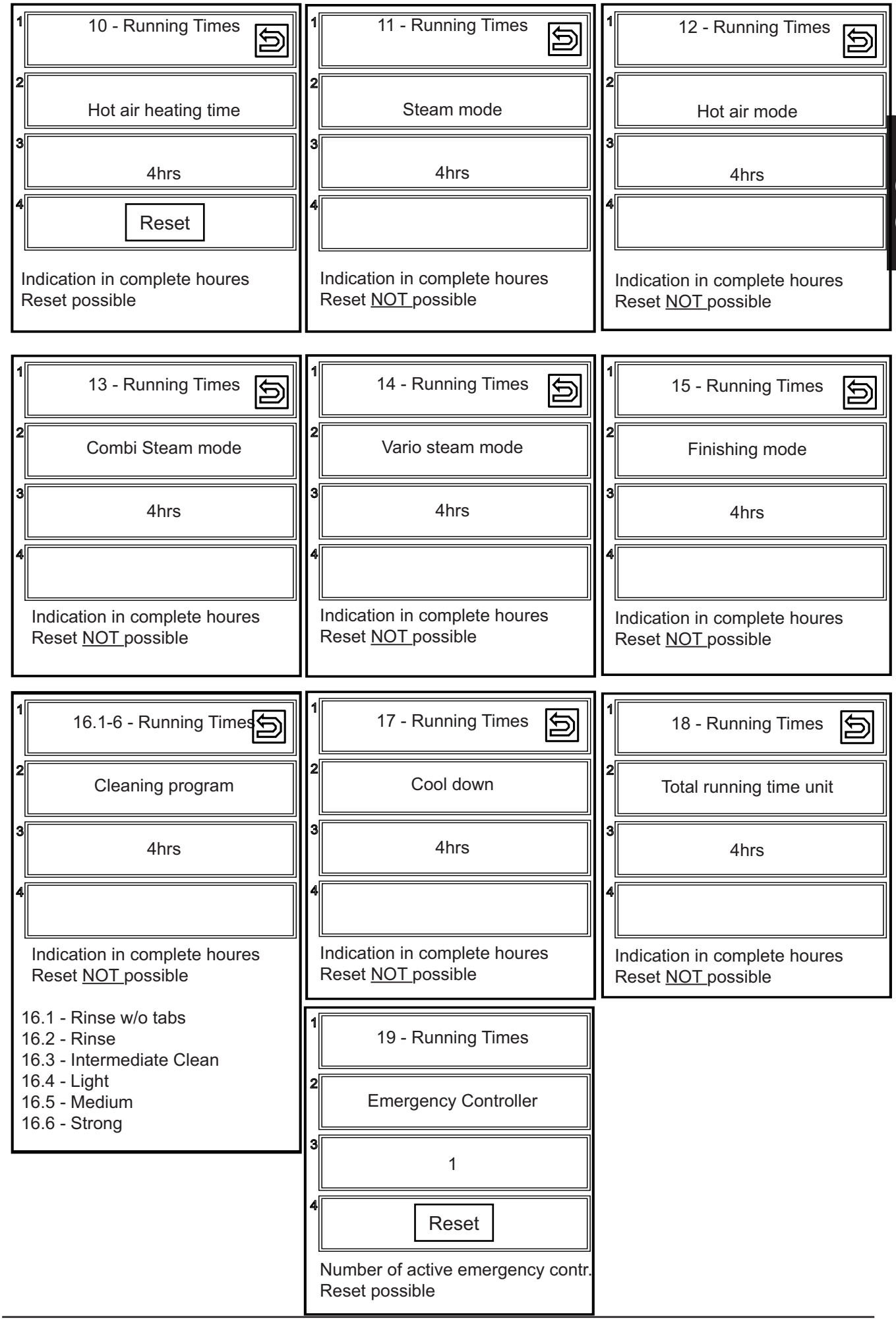
SCC Running Times





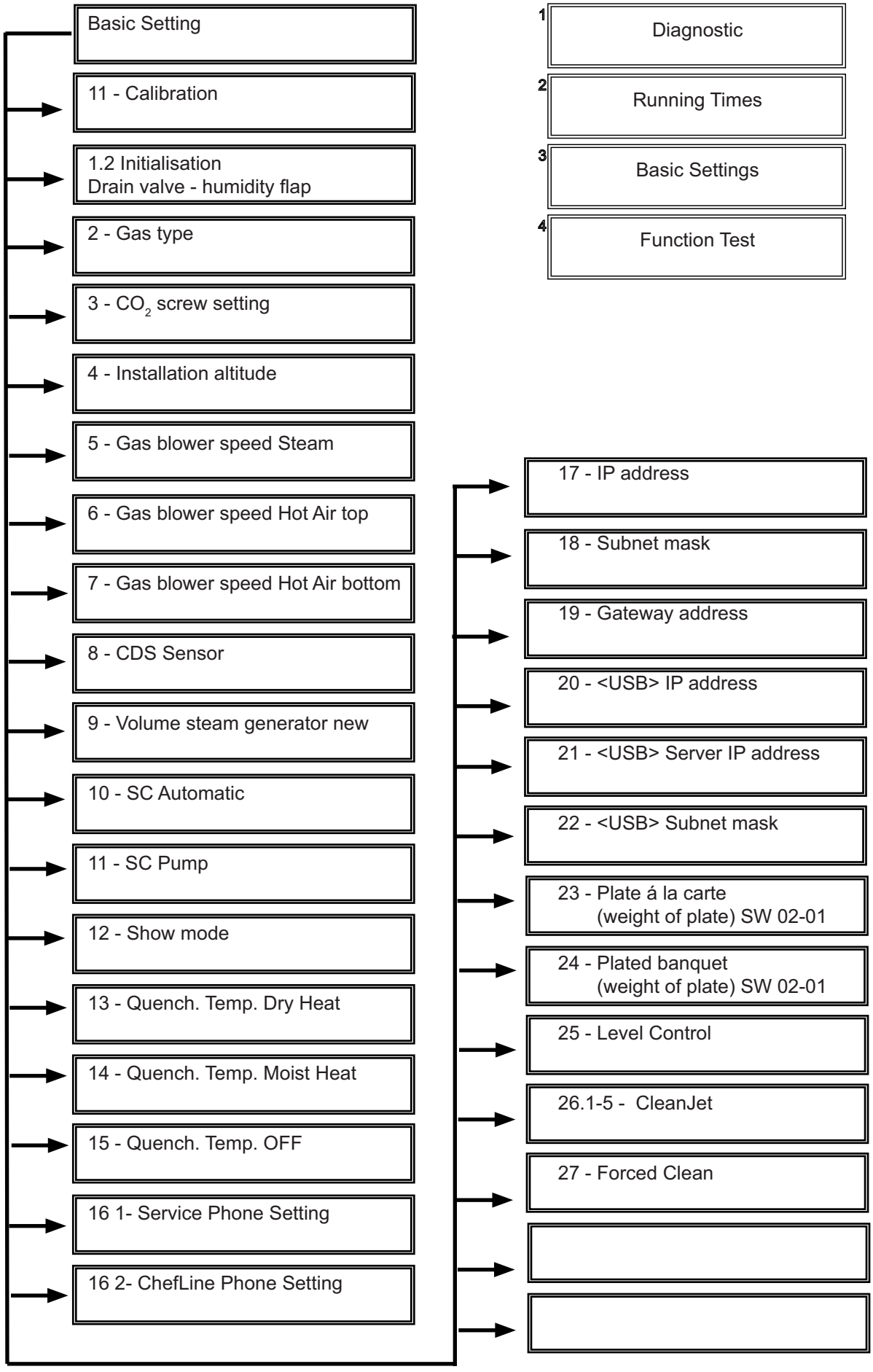


SCC Running Times



Basic Settings

NOTE: To validate changes made, switch unit OFF and ON again!


Basic Setting
11 - Calibration
1.2 Initialisation
Drain valve - humidity flap
2 - Gas type
3 - CO_2 screw setting
4 - Installation altitude
5 - Gas blower speed Steam
6 - Gas blower speed Hot Air top
7 - Gas blower speed Hot Air bottom
8 - CDS Sensor
9 - Volume steam generator new
10 - SC Automatic
11 - SC Pump
12 - Show mode
13 - Quench. Temp. Dry Heat
14 - Quench. Temp. Moist Heat
15 - Quench. Temp. OFF
16 1- Service Phone Setting
16 2- ChefLine Phone Setting
1 Diagnostic
2 Running Times
3 Basic Settings
4 Function Test
17 - IP address
18 - Subnet mask
19 - Gateway address
20 - <USB> IP address
21 - <USB> Server IP address
22 - <USB> Subnet mask
23 - Plate á la carte
(weight of plate) SW 02-01
24 - Plated banquet
(weight of plate) SW 02-01
25 - Level Control
26.1-5 - CleanJet
27 - Forced Clean

SCC Basic Settings (switch OFF - ON after adjustment)

1 1- Basic Setting

Calibration [Start]

B1	B4	Step
99°C	95°C	90

P1	RPM	Error
1,55V	1550	0

NOTE:
- To prepare unit for calibration run see page 64
- When error is shown switch off and follow Error messages for repair. Afterwards start calibration run once again.

1.2 - Basic Setting

Drain valve (Dv) [Start]

Flap (F) [Start]

Dv (t0)	Dv(t1)	F-t
8,4s	28,2s	19,4s

- SInce software 01-07-11
- Drain valve or flap shall be initialised after indication of Service 26, 27 or 21.

Times shown above are avarage times.

2 - Basic Setting

Gas type

3B/P - 3P- A12/13 - Nat.H - Nat.L

- Confirm adjustment by touch on „Store“ icon.
- Corresponding blower speeds are automatically selected and loaded.
- Unit must be switched off and on to store new setting!

3 - Basic Setting

3B/P (G30)

Steam	Hot air Top	Hot air Bot.
4,3mm	2,8mm	2,9mm

Set CO2 screw
Check CO2

- Set $C0_2$ screw after changing gas type
- Adjust screw to given length.
- After each gas modification a flue gas analysis must be carried out (CO and CO_2 values).

4 - Basic Setting

Installation Altitude above sea level

-500-0, 0-499, 500-999
1000-1499,1500-1999 etc

- since software version 01-07-02
- select installation altitude with dial icon
- after 5 sec. „Store“ icon will show
- to confirm press „store“ icon and switch unit off and on again.
- check safe CO_2 values.

5 - Basic Setting

Gas blower speed
Steam

rpm [Start rpm xxxx]

[Min rpm xxxx] [Max rpm xxxx]

- adjusting speed of blower motor steam (+/ -10%)
- change setting only in steps of 60 rpm each.
- modified speed will be shown next to dial icon.
- to store new setting switch unit off and on again.

6 - Basic Setting

Gas blower speed
Hot Air Top

rpm [Start rpm xxxx]

[Min rpm xxxx] [Max rpm xxxx]

- Adjusting speed of blower motor hot air top (+/ -10%)
- change setting only in steps of 60 rpm each;
- modified speed will be shown next to dial icon.
- to store new setting switch unit off and on again;

7 - Basic Setting

Gas blower speed
Hot Air bottom

rpm [Start rpm xxxx]

[Min rpm xxxx] [Max rpm xxxx]

- adjusting speed of blower motor hot air bottom (+/ -10%)
- change setting only in steps of 60 rpm each;
- modified speed will be shown next to dial icon.
- to store new setting switch unit off and on again

8 - Basic Setting

CDS

1000

- Value can be adjusted between 900-1150 pulses/litre
- Confirm adjustment by touch on dial icon

SCC Basic Settings (switch OFF - ON after adjustment)

9 - Basic Setting

2 Volume Steam Generator NEW

3 Reset — After manual descaling

4 Reset — After changing steam generator

- since Software version 01-07-02
- Reset (press „for 5 sec.) in window 3 activates SC-automatic to reset the CDS indication.
- Reset (press „for 5 sec.) in window 4 activates SC-automatic to get the new reference volume after steam generator change

10 - Basic Setting

2 SC Automatic

3 45sec (20-90sec) SC Pump duration

4 60min (20-120min) Steam heating time

- Activation by touch on dial icon
- Adjust duration with dial
- Confirm adjustment by touch on dial icon

11 - Basic Setting

2 SC Pump

3 CONTINUOUS Puls

- Activation by touch on dial icon
- Adjust with dial
- Confirm adjustment by touch on dial icon

12 - Basic Setting

2 Show mode

3 ON - OFF

- Activation by touch on dial icon
- Adjust with dial
- Confirm adjustment by touch on dial icon

13 - Basic Setting

2 Quench. Temp. Dry Heat

3 90°C (20- 130°C) 194°F (68 - 266°F)

- Setting quenching temperature
- Press dial icon
- Adjust to new temperature
- Confirm adjustment by touch on dial icon

14 - Basic Setting

2 Quench. Temp. Moist Heat

3 70°C (20- 130°C) 158°F(68 - 266°F)

- Press dial icon
- Adjust to new temperature
- Confirm adjustment by touch on dial icon

15 - Basic Setting

2 Quench. Temp. OFF

3 120°C (20- 130°C) 248°F (68 - 266°F)

- Press dial icon
- Adjust to new temperature
- Confirm adjustment by touch on dial icon

16.1 - Basic Setting Service Phone

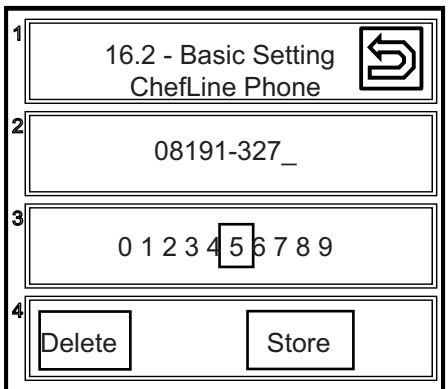
2 08191-327_

3 0 1 2 3 [4] 5 6 7 8 9

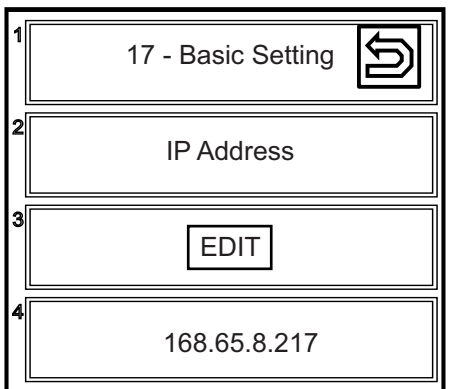
4 Delete — Store

- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“

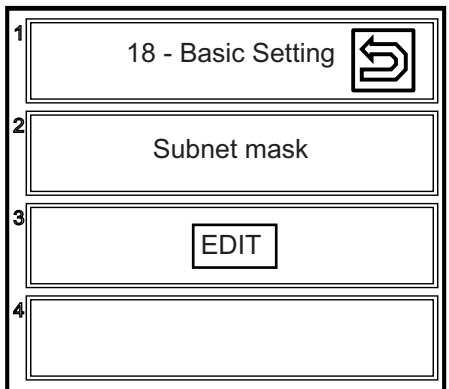
SCC Basic Settings (switch OFF - ON after adjustment)



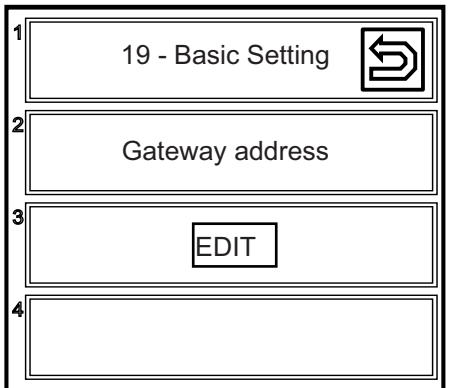
- since SW 01-07-11
- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



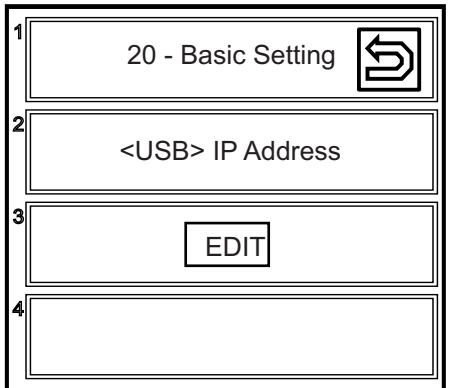
- Press „Edit“
- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



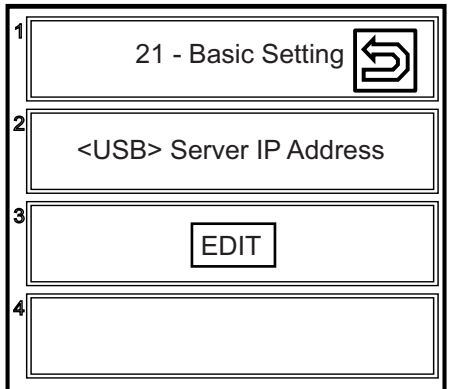
- Press „Edit“
- Change number and confirm by pressing central dial- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



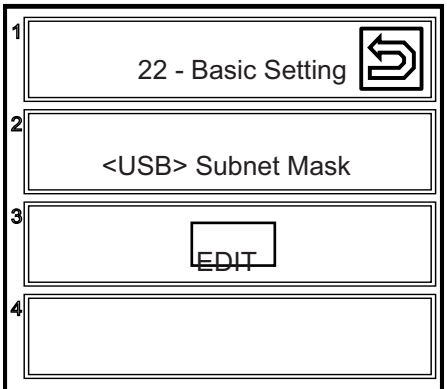
- Press „Edit“
- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



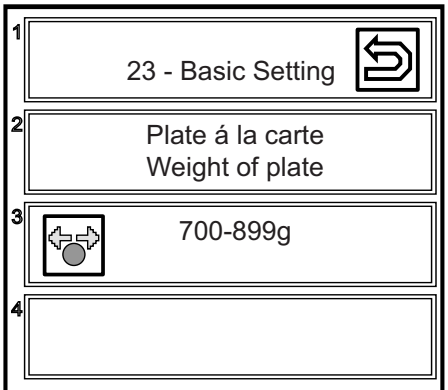
- Press „Edit“
- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



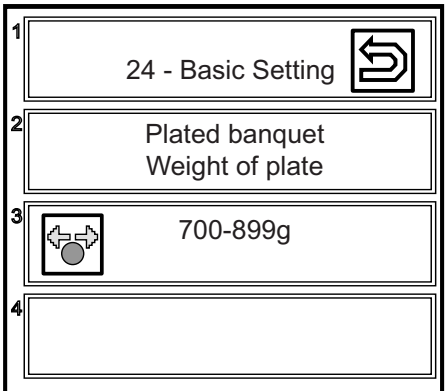
- Press „Edit“- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



- Press „Edit“- Change number and confirm by pressing central dial
- „Delete“ erases last entered number
- Confirm entry by pressing „Store“



- Press dial icon
- Adjust to correct plate weight



- Press dial icon
- Adjust to correct plate weight

SCC Basic Settings (switch OFF - ON after adjustment)

1	25 - Basic settings Level Control
2	Number of Shelves
3	5
4	

The number of indicated shelves can be indicated for Level Control
If „0“ is selected the max number of shelves is shown.

1	26.1 - 5 - Basic settings CleanJet
2	CleanJet Light **RESET**
3	1
4	2

25.1- Rinse 25.2 - Interim
25.3 - Light 25.3 - Medium
25.4 - Strong
Changing of indicated numbers of cleaner or rinse tabs
Used for soft water connection and too much foam development

1	27 - Basic Settings
2	Forced Clean
3	OFF
4	

If setting is „ON“ the operator can use the equipment for the duration as set in „CleanJet setting“ under „Settings“.
Thereafter he can extend this time for max 2x2hours before a CleanJet mode MUST be started.

1	
2	
3	
4	

1	
2	
3	
4	

1	
2	
3	
4	

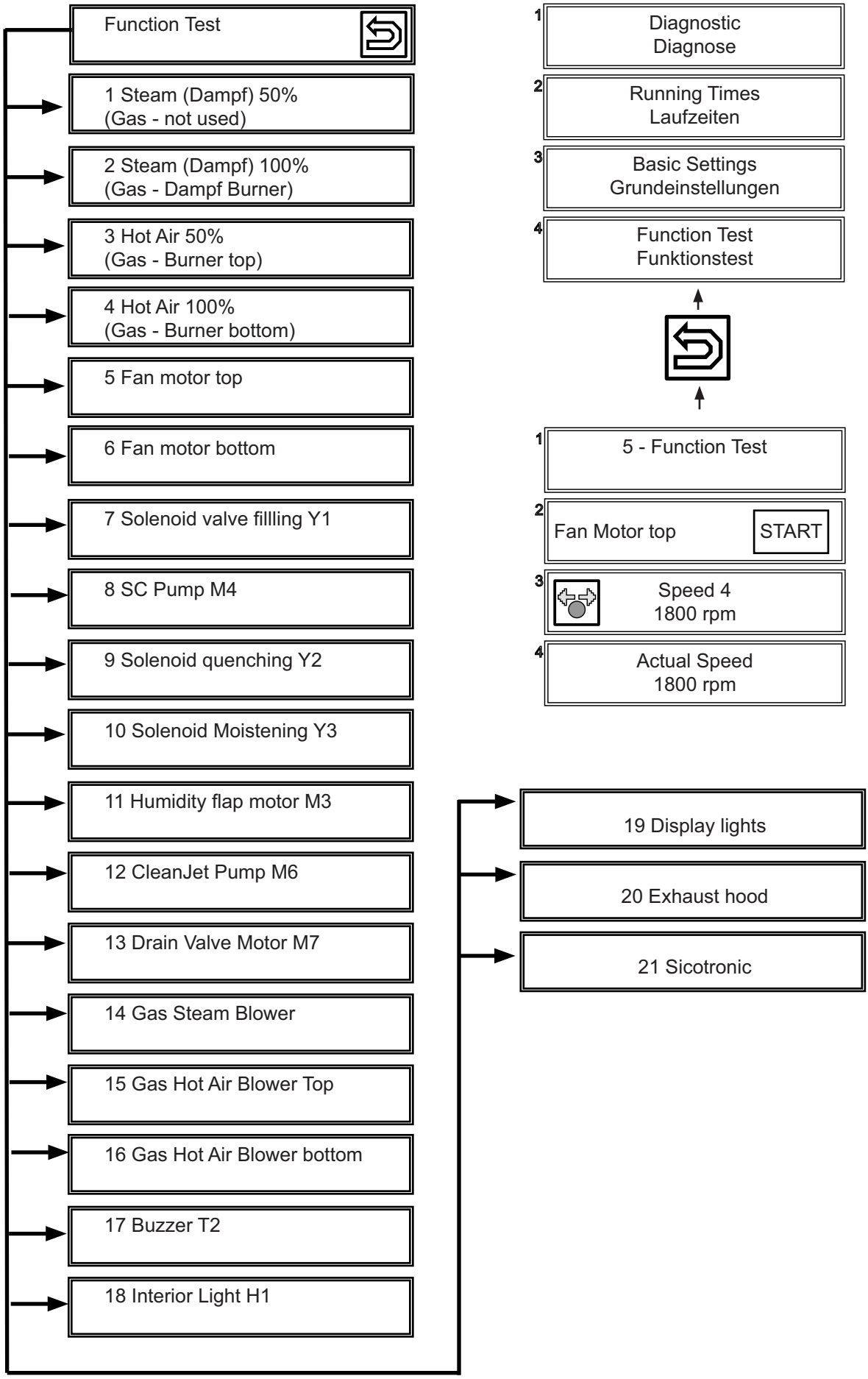
1	
2	
3	
4	

1	
2	
3	
4	

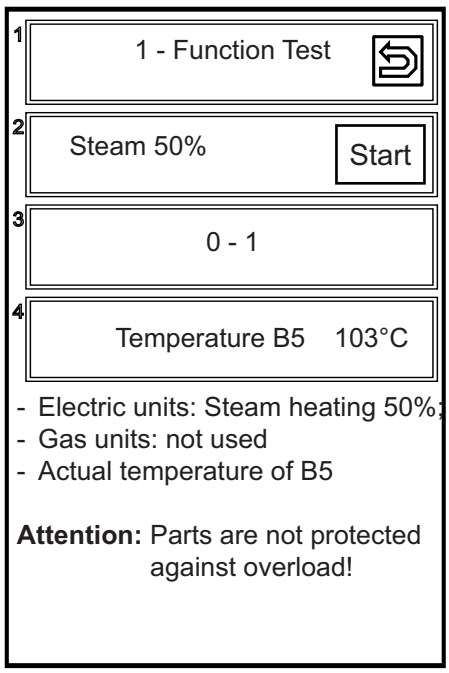
1	
2	
3	
4	

Notes:

Function test

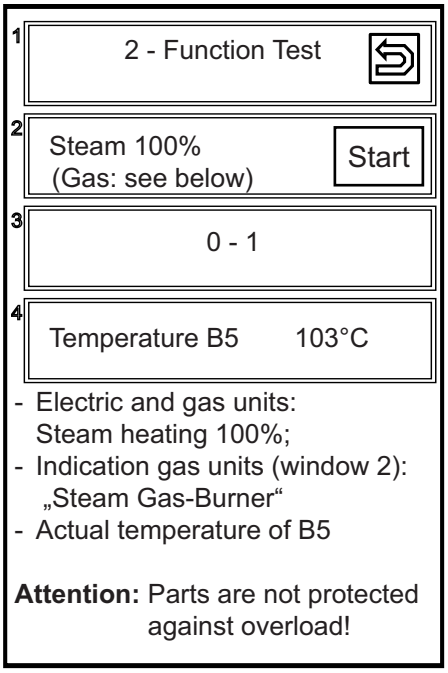


Function test



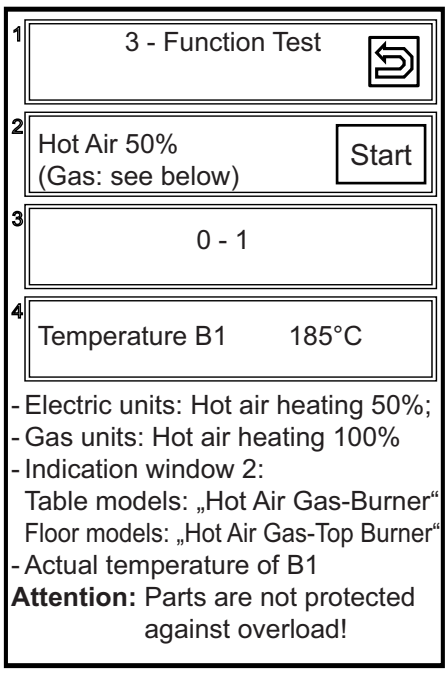
- Electric units: Steam heating 50%;
- Gas units: not used
- Actual temperature of B5

Attention: Parts are not protected against overload!



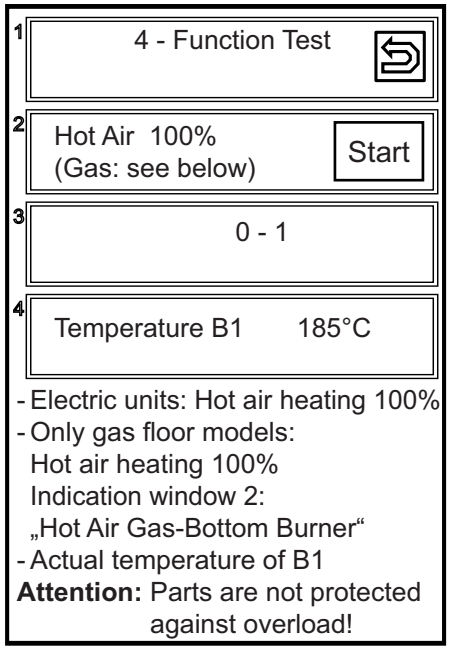
- Electric and gas units: Steam heating 100%;
- Indication gas units (window 2): „Steam Gas-Burner“
- Actual temperature of B5

Attention: Parts are not protected against overload!



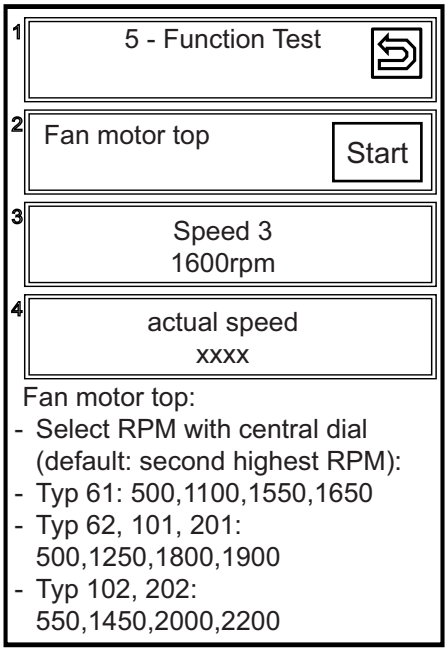
- Electric units: Hot air heating 50%;
- Gas units: Hot air heating 100%
- Indication window 2:
  Table models: „Hot Air Gas-Burner“
  Floor models: „Hot Air Gas-Top Burner“
- Actual temperature of B1

Attention: Parts are not protected against overload!

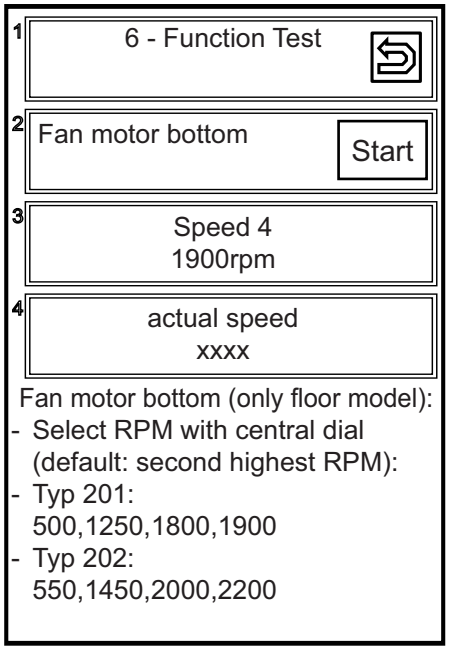


- Electric units: Hot air heating 100%
- Only gas floor models:
  Hot air heating 100%
  Indication window 2:
  „Hot Air Gas-Bottom Burner“
- Actual temperature of B1

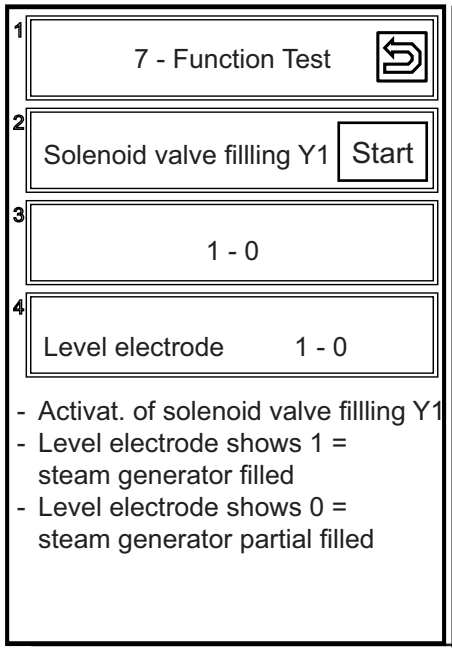
Attention: Parts are not protected against overload!



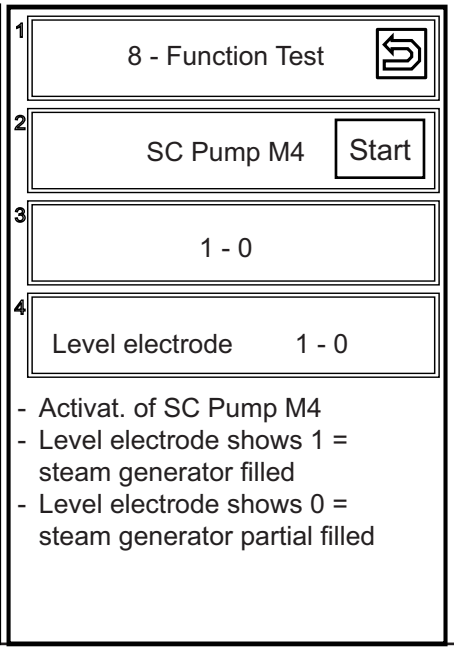
Fan motor top:
- Select RPM with central dial (default: second highest RPM):
- Typ 61: 500,1100,1550,1650
- Typ 62, 101, 201: 500,1250,1800,1900
- Typ 102, 202: 550,1450,2000,2200



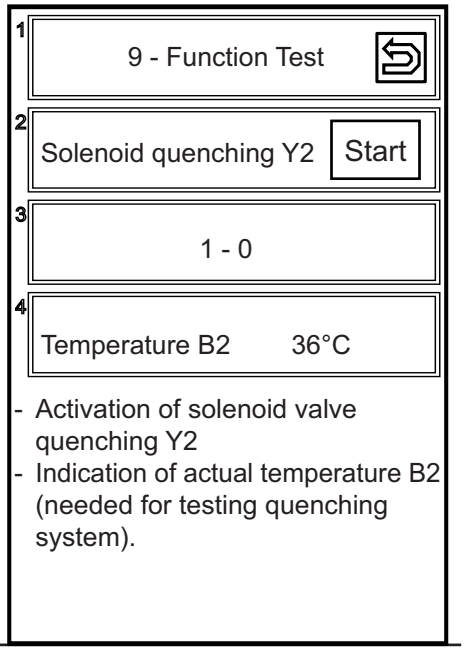
Fan motor bottom (only floor model):
- Select RPM with central dial (default: second highest RPM):
- Typ 201: 500,1250,1800,1900
- Typ 202: 550,1450,2000,2200



- Activat. of solenoid valve filllling Y1
- Level electrode shows 1 = steam generator filled
- Level electrode shows 0 = steam generator partial filled

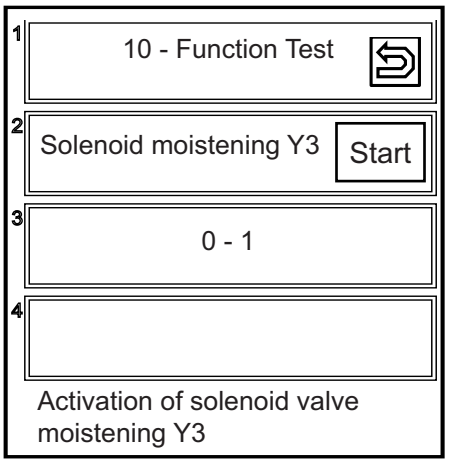


- Activat. of SC Pump M4
- Level electrode shows 1 = steam generator filled
- Level electrode shows 0 = steam generator partial filled

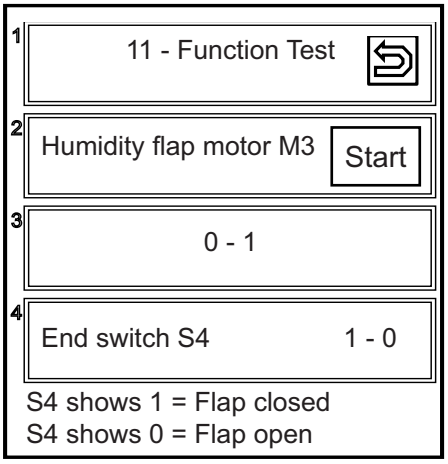


- Activation of solenoid valve quenching Y2
- Indication of actual temperature B2 (needed for testing quenching system).

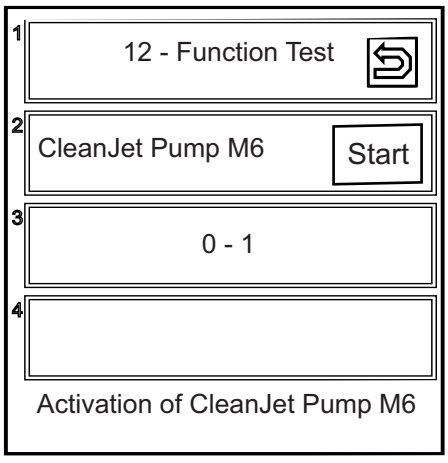
Function test



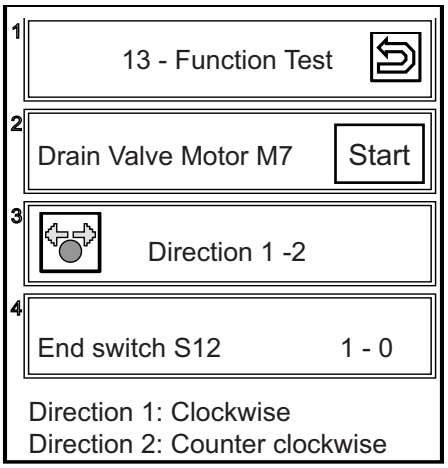
Activation of solenoid valve moistening Y3



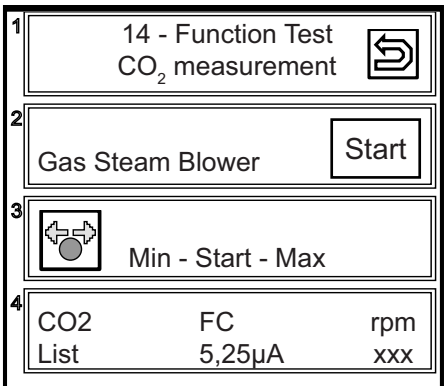
S4 shows 1 = Flap closed
S4 shows 0 = Flap open



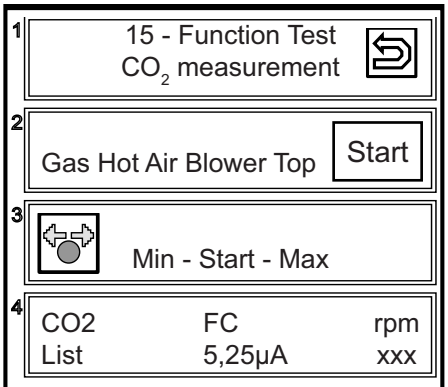
Activation of CleanJet Pump M6



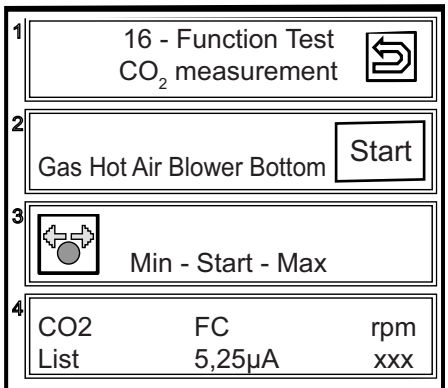
Direction 1: Clockwise
Direction 2: Counter clockwise



Gas blower Steam:
- Reference CO2 values ONLY to list in training manual **„valid since April, 2005“**!
- CO_2 adjustment with CO_2 screw on gas valve at Max rpm only.
- **CO_2 too high:** turn CO_2 screw 2 turns clockw., than counter clockw. until CO_2 value correct;
- **CO_2 too low:**
- turn CO_2 screw counter clockw. until CO_2 value correct;
- check CO_2 at Min rpm
- CO value must be always below 300 ppm!
- Flame current should be always above 4,00 µA, idealy 5,0-5,75 µA

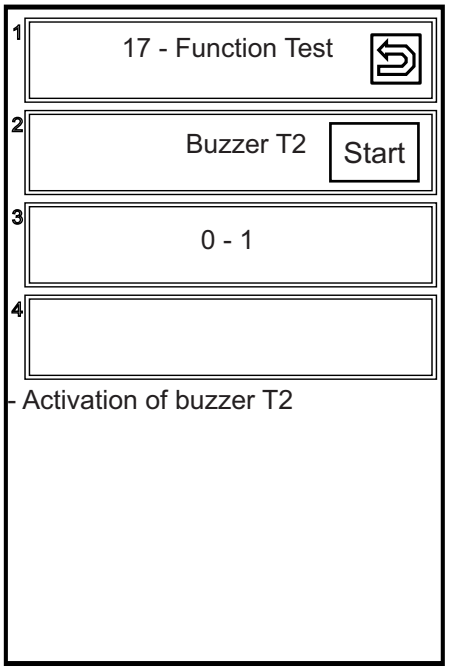


Gas blower Hot Air top
- Reference CO2 values ONLY to list in training manual **„valid since April, 2005“**!
- CO_2 adjustment with CO_2 screw on gas valve at Max rpm only.
- **CO_2 too high:** turn CO_2 screw 2 turns clockw, than counter clockw. until CO_2 value correct;
- **CO_2 too low:**
- turn CO_2 screw counter clockw. until CO_2 value correct;
- check CO_2 at Min rpm
- CO value must be always below 300 ppm!
- Flame current should be always above 4,00 µA, idealy 5,0-5,75 µA

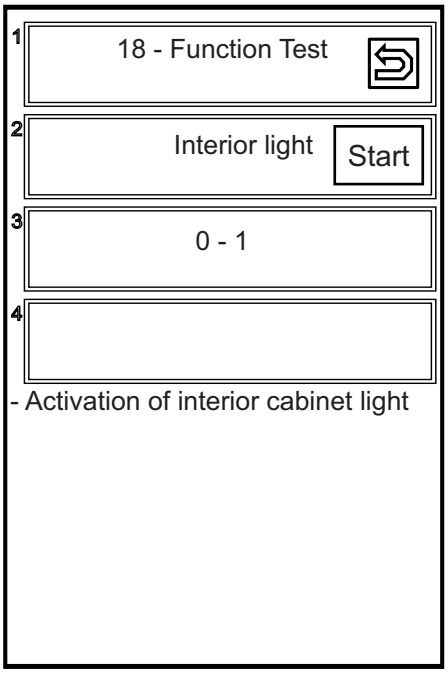


Gas blower Hot Air bottom
- Reference CO2 values ONLY to list in training manual **„valid since April, 2005“**!
- CO_2 adjustment with CO_2 screw on gas valve at Max rpm only.
- **CO_2 too high:** turn CO_2 screw 2 turns clockw., than counter clockw. until CO_2 value correct;
- **CO_2 too low:**
- turn CO_2 screw counter clockw. until CO_2 value correct;
- check CO_2 at Min rpm
- CO value must be always below 300 ppm!
- Flame current should be always above 4,00 µA, idealy 5,0-5,75 µA

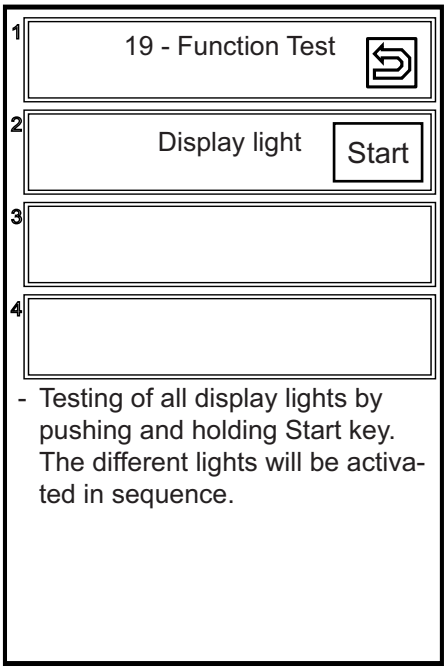
Function test



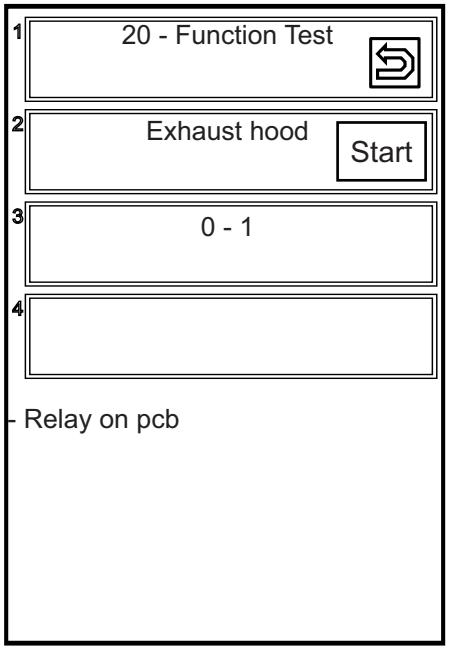
- Activation of buzzer T2



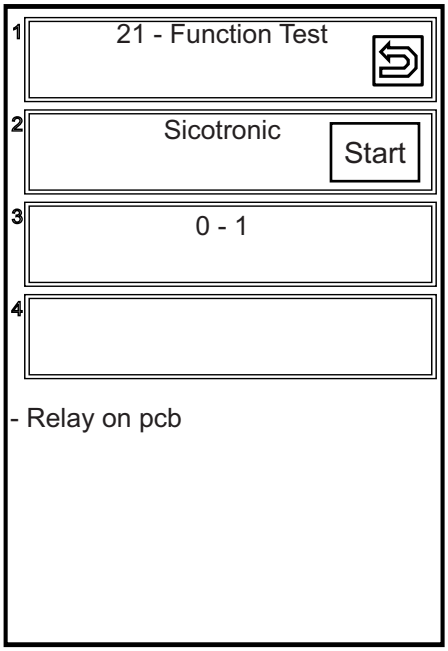
- Activation of interior cabinet light



- Testing of all display lights by pushing and holding Start key. The different lights will be activated in sequence.



- Relay on pcb



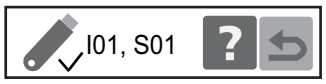
- Relay on pcb

Download of unit service data

With this function all actual valid service data of the diagnose program can be downloaded onto a stick. This can be done during an active process or also if the unit is in standby (unit must be switched on). To get all data the download should be done during an active process. The maximum number of download‘s on one SCC is 4 times within one our.

Connect USB Stick to unit interface. If the stick is recognised it will be shown as a blue stick symbol right of the download key.

Touch key. During the Download-process the colour of the stick changes from blue to red and on the key in the symbol running lines are visible.



If the download-process was finished successfully then the colour of the stick changes from red to blue and a tick is shown underneath the stick symbol. Additional I, S (I01; S01) and the actual number of downloads are indicated

The following data can be found on the stick after connecting it to a PC: On the stick the folder „log“ can be found.This folder contains txt- files. The above mentioned I01 stands for STAT_xx.txt and S01 stands for SERV_xx.txt. These two files are numbered, as it is possible to download data‘s up to 4 times within 1 hour from the same unit. The files contain the service datas which are appropriate at the moment of the download. The file STAT.xx.txt shows the frequency of usage of the processes (SCC-process, customer program‘s, CleanJet and manual processes) (The file APLOG.txt is not relevant for service)

The file SERV-xx.txt contains service data.

The file SERV is partitioned into the following block‘s:
a) Common Information
b) Basic settings
c) Diagnostic
d) Running Times
e) System Error Logger
f) Gas Error Logger Burner Control 0
g) Gas Error Logger Burner Control 1

Common Information

Date and Time..... : 20070907134033 =Moment of download (JJJJ/MM/TT/hh/mm/ss)
Startup Date and Time.....: 20000101000000 =20000101 - unit was updated with software
: 20070801141545 = unit operated for first 10 hours-warranty starts
Unit type..... : SCC_61
Energy type..... : G = Indication G(as) or E(lectric)
Unit Serial number..... : G61SE04061234567
Software version..... : „SCC-03-01-02 „ = Unit software
Script-Version.....: Indication of chain account
CPU-Board Revision..... : 612
CPU-Board Serial number..... : 24456703
CPU-Board Manufacturing date..... : 2007-07-30 03:19:24
Burner Control 0 SW-version..... : „1.4.4“ = Software version of ignition box
Burner Control 1 SW-version..... : not supported by version(on floor models indication of the 2nd igni. box)
Language..... : ENGLISH OTHERS = selected language

Basic Settings (Indication of the present values of the package basic settings)

B-1.2 Drain valve time0..... :8.6 s
B-1.2 Drain valve time1..... :28.7 s

B-22 <USB> Subnet mask... :???.???.???

Diagnostic (Indication of the present values of the package diagnostic)
D-1 Cabinet B1 act..... :24.84 C
D-1 Cabinet B1 max..... :693.40 C

D-23 S12 Micro switch..... :1

Running Times (Indication of the present values of the package running times)

R-1 S3 Door openings..... :248
R-2 S12 Ball valve openings. :91

R-19 Emergency Controller..... :3

System Logger

Last calibration..... : 19700101000000 date of manual calibration;
:19700101 = not calibrated since software update
: 20070801173010 date of last manual calibration
Running time since last cal... :0 hrs
Calibrations..... :0
Last emergency run..... :19700101000000 = humidity control
Last emergency running time... :0 s
Heatingrequest hotair..... :0
Heatingrequest steam..... :0
Fanmotor1 running time..... :0 hrs
Fanmotor2 running time..... :0 hrs
Flap operating cycles..... :73
Flap running time..... :15 min
State of exhaust hood..... :0

System Error Logger (Indication of the last 10 Service-failures with the appropriate values at the moment the failure occurred)

1: „2006-07-25 10:50:54, B1: 28, B2: 28, B6: 30, B5: 253, M1 set: 0, M1 actual: 0, M2 set: 0, M2 actual: 0, **Mode: 1**, Humidity %: 4, Hot air %: 0, Steam %: 0, Y2: 0, Y1: 0, S2: 1, M4: 0, EC: 00002001 Service 31: 0, Service 32: 0, Service 34: 0, Service xx: 0“
SERVICE 10
2: EGE 1005 (Wildcards from 1-10 for additional Service failures. EGE 1005 is indicated in case there was no failure)

Example under item 1:
Service 10: Actual failure (= SC-Pump without function)
„2006-07-25 10:50:54: Failure is occurred at 25.07.2006 at 10:50:54 hour
Temperature at sensors were: **B1 = 28°, B2 = 28°, B6 = 35°, B5 = 253°,**
M1 actual:0 and **M2 actual:0** = Motor was not running
(Indication 0, otherwise actual REV‘S are shown)
Mode: 1 = No mode was selected
Possible indication:
2 = Steam 30-97°C
3 = Steam 98 - 103°C
4 = Steam 104 - 130°C
5 = Hot air 30 - 100°C
6 = Hot air 101 - 300°C
7 = Combination 30 - 100°C
8 = Combination 101 - 140°C
9 = Combination 141 - 300°C
10 = not relevant
11 = not relevant
12 = COOLDOWN
humidity%: 4 =actual humidity 4 %;
Hot air %: 0 = hot air heating switched off (possible indication 0/50/100)
Steam %: 0 = steam heating switched off (possible indication 0/50/100)
Y2: 0 = Solenoid valve quenching not active (possible indication 0 or 1)
Y1: 0 = Solenoid valve filling steam generator not active (possible indication 0 or 1)
S2: 1 = Level electrode has contact with water (possible indication 0 or 1)
M4: 0 = SC-Pump not active (possible indication 0 or 1)
EC: 00002001 = no relevant information

Service 31: 0, Service 32: 0, Service 34: 0:
This failure code will always be shown. If no failure has occurred then the failure code followed by „0“ is shown. If a failure has occurred it will be shown, like all other failures, in the error history. In this case instead of „0“ the corresponding code is shown, e. g.:
Service 31 Info 10 (pls refer to detailed service error list)

Gas Error Logger Burner Control 0
Indication of the last 14 gas-failures, generated by ignition box top)
Gas Error Logger Burner Control 1
Indication of the last 14 gas-failures, generated by ignition box bottom)

act: 0 2006-07-25 17:29:47
1: 30 2006-07-12 11:06:27
2: EGE 1005 (Wildcards from 1-13 for additional gas failures. EGE 1005 is indicated in case there was no failure)

Example under item 1
Failure 30 (wrong or no rev's of gas blower steam) occurred 12.07.2006 at 11.06:27 h.
feedback signal from blower motor to ingition box missing;

Indication of ignition box error messages (1-32 is shown to the operator as „Reset"):

1	Hot air or Steam	no gas, gas valve or electrode defective
14	Hot air	gas valve controll, change ignition box
19	Hot air	no flame because flame current is too low check burner setting, flame current, ignition cable and plug
20	Hot air	wrong or no rpm signal from gas blower check gas blower, power supply gas blower and control harness of gas blower
22	Hot air	no flame after 5 ignition sequences no gas, gas valve or electrode defective
24	Steam	gas valve controll, change ignition box
29	Steam	no flame because flame current is too low check burner setting, flame current, ignition cable and plug
30	Steam	wrong or no rpm signal from gas blower check gas blower, power supply gas blower and control harness of gas blower
32	Steam	no flame after 5 ignition sequences no gas, gas valve or electrode defective

Possible failure in case of „Service 32"

33, 36		Change ignition box
35		Check frequency of main
39	Hot air	Check burner setting, ignition electrode and distance, and flame current
40	Hot air	Check ignition cable
42	Steam	Check burner setting, ignition electrode and distance, and flame current
43	Steam	Check ignition cable

Is shown on display „Change polarity"

34	Change polarity of mains

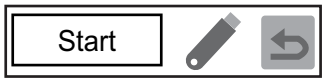
All other numbers (2-13, 15-18, 21, 23, 25-28, 31): change ignition box

Download of HACCP data

Output of cooking datas via the interface.
The cooking datas (interior cabinet temperature/core temperature a. s. o.) automatically are send to the interface when a cooking mode is active.
Additionally the HACCP datas from the last ten days are stored and can be downloaded by pressing the download key

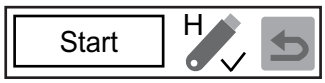
To download data proceed as follows
Connect USB-Stick to USB interface of the unit

If the USB stick was identified then the symbol of the stick appears on the download display



Touch "Start"-key

During the download procedure the hour glass appears and the colour of the stick changes from blue to red.



If the procedure was successfully completed, "Start" appears again and at the stick symbol "H" for HACCP data and a tick is shown

haccp

The following data can be found on the stick if it is connected to a PC for reading the HACCP-Data:

On the Stick the folder HACCP can be found.
In this folder two types of files are included.
Typ .txt and file .dat.
HACCP Data are in the file haccp.txt

rlhaccp.txt

Notes:

HACCP-Data are shown in the following format:

```
*** H A C C P ***
;
;       Ch-nr.    >>210<<                       = batch number
                                                  (number of stored cooking processes)
;       Typ       >>SCC_61<<                    = unit typ
;       Serial nr.>>E61SE04061234567<<          = Serial number of the unit
;       Version   >>SCC-01-07-11     -<<        = Software version of the unit
;       Time      >>2006.07.20 12:27:26<<       = Starting date and time of the cooking process
;       Progr.    >>Roast<<                     = Program name
                                                  (manual mode was used, if „>><<“ appears )

;       #1 : Gartemp.          / cabinet temp.
;       #2 : Kerntemp. Soll    / core temp. target
;       #3 : Kerntemp          / core temp.
;       #4 : Zeit (Std:Min:Sek) / time (h:min:sec)
;       #5 : Temp. Einheit     / temp. unit
;       #6 : Energie Opt.      / energy opt.
;       #7 : Energie 1/2       / energy 1/2
;       #1     #2     #3     #4            #5     #6     #7
; Mode HOT AIR          000:00:00                          = used cooking mode
         29     -      32     000:00:00     C      -      -
; Mode COMBI            000:00:04
         29     -      32     000:00:04     C      -      -
; Mode HOT AIR          000:00:07
         29     -      32     000:00:07     C      -      -
         29     -      32     000:00:11     C      -      -
; end ***                                                 = End of cooking process
```

B) Additional indications:

Progr. >>SCC - Universal Roast<< = Indication of selected SCC process

Progr. >>SCC - ~ pork (11000)<< = Copied SCC process with new name (e. g. pork) and reference number of the original process (e. g. 11000)

parameters BROWNING : 2 CORE TEMPERATURE : 78
end *** = At the end of the cooking process the selected cooking parameters are shown if a SCC process was used.

Door opened or Door closed = during cooking process

Start (on/off) = Cooking process was interrupted by switching unit off and on

Start (power failed) = Power failure longer than 10 minutes

Restart (power failed) = Power failure less than 10 minutes

Start (SW update) = Software update performed

Service messages

Service 10	SC pump
Service 11	CDS Sensor
Service 12	CDS Sensor no signal
Service 13	Steam generator
Service 14	Level electrode - Water
Service 15	Free
Service 16	PCB with old sofware
Service 17	EEPROM faulty
Service 18	Free
Service 19	Free
Service 20	Thermocouple B1 Cabinet
Service 21	Micro switch Clima Plus
Service 22	Free
Service 23	SSR steam
Service 24	SSR hot air
Service 25	CleanJet no function - Pump
Service 26	Drain valve closed
Service 27	Drain valve doesn‘t close
Service 28	Steam generator above 180°C
Service 29	PCB temperature
Service 30	Humidity control
Service 31	Core probe
Service 32	Ignition box
Service 33	Ignition, gas supply,
Service 34	Bus signal
Service 100	Main contactor or „on-off“ switch defective
Intervall code of intermittent buzzer counted per 5 seconds (broken thermocouple)	
B1	12x per 5 seconds
B2	6x per 5 seconds
B4	5x per 5 seconds
B5	8x per 5 seconds
Core Probe	20x per 5 seconds

Service messages SCC

Service 10
(SC Pump)

Maintenance needed

- Appears for 30 sec. after switch ON
- Display can be cancelled by touch
- SC-automatic didn‘t pump off
- Check SC-pump

Service 11
(CDS sensor)

Maintenance needed

- Appears for 30 sec. after switch ON
- Display can be cancelled by touch
- Water level o. k.
- Level electrode is working
- Too many pulses from CDS sensor
- Check electrode or water leakage through check valve

Service 12
(CDS sensor w/o signal)

Maintenance needed

- Appears for 30 sec. after switch ON
- Display can be cancelled by touch
- Level electrode o.k.
- Check CDS sensor for blockage (no signal)

Service 13

Maintenance needed

- Only hot air possible
- No low water signal during last 3x5 minutes of steam production ==> filled by auxilliary mode
- Check 0-1 signal from level electrode to pcb

Service 14

Maintenance needed
Only hot air manual possible

- Appears for 30 sec. after switch ON
- Display can be cancelled by touch
- Level electrode no water sensing
- CDS sensor measured enough pulses;
- Possible reason osmosis water treatment

Service 15

Not activated

Service 16

Update pcb software first
Unit without function

- Appears for 30 sec. after switch ON
- Only active with pcb-SW version 01-07-09 and eeprom version later than 01-07-09 01-07-09 (Data protection Eeprom)

Service 17
(Eeprom not initializised)

Unit without function

- Only active with pcb-SW version 01-07-09
- Data on EEPROM faulty
- New original eeprom needed

Service 18

Not activated

Service 20
(Thermocouple B1 cabinet)

Unit without function

- Appears on time
- Thermocouple broken or out of range
- Buzzer sounds 30 seconds
- Unit without function

Service 21
(Micro switch ClimaPlus)

Maintenance needed

- Appears for 30 sec. after switch ON
- Display can be cancelled by touch
- Micro switch ClimaPlus without function during start routine
- Manual cooking without humidity control possible

Service 22

Not activated

Service messages SCC

1 Service 23
(Short circuit SSR Steam)

2 No function
Switch unit off

- Since SW 01-07-09 only!
- Display at once when:
  Temp. B5 raises above 100°C (212°F) for 60sec. without energy demand
- Intermittent buzzer 30 sec
- Unit without function

1 Service 24
(Short circuit SSR Hot Air)

2 No function
Switch unit off

- Since SW 01-07-09 only!
- Display at once when:
  Temp. B1 raises starting from 150°C (300°F) to above 200°C (300°F) without energy demand
- Intermittent buzzer 30 sec
- Unit without function

1 Service 25
(no water circulation)

2 CleanJet mode no function
Flush cabinet manually

- Appears on time
- Display can be cancelled
- Remove container from cabinet
- CleanJet pump does not deliver
- Fan motor does not reduce speed
- Check water tap, pump, quenching solenoid (refill function), quenching nozzle or or CleanJet pipe for blockage

1 Service 26
(drain closed)

2 No function

- Appears on time when CleanJet is selected
- Cooking not possible - drain closed
- Micro switch drain valve in permanent closed position
- Replace drain valve assembly

1 Service 27
(CleanJet micro switch)

2 CleanJet No function

- Appears for 30 sec. after switch ON
- Display can be cancelled switch
- drain valve in permanent open position, CleanJet not possible
- Check micro switch drain valve
- Start rinse (abort) program

1 Service 28
(Steam gen. above 180°C)

2 Maintenance needed

- Is displayed at „Service Info“
- Appears if temperature at thermocouple steam generator B5 is above 180°C (300°F)
- Indication goes off when temperature below 110°C (230°F)

1 Service 29
(PCB temperature)

2 Change air filter

- Appears on time after switch ON until temperature is low again
- Temperature PCB above 85°C
- Check air filter, cooling fan and control panel gasket
- Check for external heat sources

1 Service 30
(humidity control)

2 Maintenance needed

- Appears for 30 sec. after switch ON
- Display can be cancelled
- Humidity control out of function
- Humidity emergency control active since more than 1 hour
- As of SW version 01_07_04 emergency control is shown with a dot under item „Mod.“

1 Service 31.xx
(core sensor)

2 Maintenance needed

- Appears for 30 sec. after switch ON
- Core sensor defective
- Hex code (Combination i.e.: 31.10 -->2+8)
- 1: shaft probe 2- 5th probe
- 4: 4th probe 8: 3rd probe
- 16: 2nd probe 32: 1st probe in tip

1 Service 32.0-2
(Ignition box)

2 No function

- since SW version 01-07-09
- Internal Ignition box error is existing longer than 30 sec.

- 0: Ignition box top
- 1: Ignition box bottom
- 2: Both Ignition boxes
- Change ignition box

1 Service 33.1-2
(4x Reset)

2 No function
Close gas valve

- Appears after 4x Reset command without positive result
- 1: Ignition box top,
- 2: Ignition box bottom
- Check ignition wire, ignition box gas valve and gas supply.

1 Service 34.xx
(No bus signal)

2 No function

- Appears as of SW 01-07-02 when bus signal problem
- Hex code (Combination i.e.: 34.10 -->2+8)
- 1: I/O PCB
- 2: Motor bottom
- 4: Motor top
- 8: Ignition module top
- 16: Ignition module bottom
- Check bus cable plug and cable for connection and damage

Service messages SCC

1 Service 100 Main contactor 2 No function Isolate unit from mains Power remained present on fan motor when unit was switched off last. Main conatctor didn‘t disengage or ON/OFF switch on pcb defective;	1 2	1 2
1 2	1 2	1 2

Notes:

The last 10 error messages can be seen in Diagnostic mode 24 „Service error history“

Calibration SCC

Calibration at the customers site must be done under the following conditions:
Changing of:
1. pcb,
2. extrenal EEPROM,
3. B4 humidity sensor,
4. Pressure sensor P1,
5. replacing the air baffle or divider plate between the 2 fan motors of a floor model,
6. fan motor,
7. detaching of the fan wheel,
8. installation of the appliance above 1000m (3000ft) above sea level or below sea level (dead sea), installing with Ultravent of venting extension or as a Combi Duo

Basic condition Temperatures:

Cabinet sensor	Quench. sensor	Humidity sensor
B1 <40°C	B2 <45°C	B4 < 40°C

Basic condition Hardware:
Heating: OFF Fan motor: OFF Humidity flap: Closed
Side panel must be fitted; Unit must be clean, but may be wet

In order to achieve the best possible calibration values, insert 2 GN-container 20 or 40 mm deep with the opening facing downwards
in 61 and 62 units into rail 2 and 5
in 101 and 102 units into rail 3 and 7
in 201 and 202 units 3 GN container into rail 3, 10 and 17

Step	Unit status:	Error code	Reason:
1	Basic conditions o.k?: Continue with step 10	71	Basic conditions not met
10	Measurement: Offset Diff. pressure sensor P1 • Heating: OFF • Motor: OFF • Humidity flap: Closed	13	Offset out of range
In case of „13“ check:	P1 or 12V power supply to P1		
20 (min: 4x20sec; max: 4x180sec)	Controlling with all 4 fan speeds: Steady signal of rpm and pressure • Heating: OFF • Motor: ON • Humidity flap: Closed	20 71	Value out of allowable range Max time of 4x180sec exceeded
In case of „20“ check:	In diagnostic mode: P1, B4, rpm		
30 (4x 30 sec)	Measuring at all 4 fan speeds: Calibration value: cold cabinet • Heating: OFF • Motor: ON • Humidity flap: Closed	50	Calibration value not in expected range (logic)
In case of „50“ check:	Überprüfung im Diagnoseprogramm: P1, B4, rpm		

Step 20 and 30 will run 1x for each rpm setting!

40 (max. 800 sec)	Filling cabinet with steam until B2 sensor reaches 80°C (176°F) • Heating: ON • Motor: OFF • Humidity flap: Closed	11 71	No steam heating Max time of 4x800sec exceeded
In case of „11“ check:	Steam heating elements, SSR, quenching sensor		
50 (40 sec)	Stand-by in steam saturation • Heating: ON • Motor: ON (lowest speed) • Humidity flap: Closed	none	

Calibration SCC

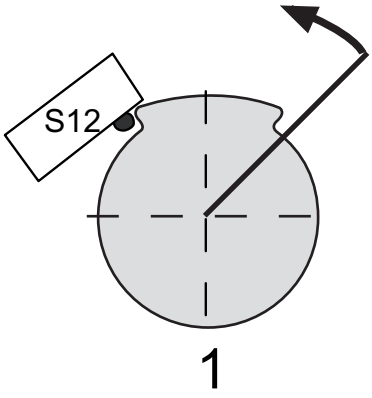
Step	Unit status:	Error code	Reason:
60 (min: 4x20sec; max: 4x180sec) In case of „20“ check:	Controlling with all 4 fan speeds: • Steam Heating: ON 50% • Motor: ON • Humidity flap: Closed In diagnostic mode: P1, B4, rpm	20 71	Value out of allowable range; Max time of 4x180sec exceeded
70 (4x 30 sec) In case of „60“ check:	Measuring at all 4 fan speeds: Calibration value: Steam • Heating: ON 50% • Motor: ON • Humidity flap: Closed In diagnostic mode: P1, B4, rpm	60	Calibration value not in expected range (logic)
	Step 60 and 70 will run 1x for each rpm setting!		
75 (min 80sec max 1000 sec) In case of „12“ check:	Heating of cabinet in combi. to 193°C (380°F) • Hot air heating: ON • Steam Heating: ON (when Hot air off) • Motor: ON (max rpm) • Humidity flap: Closed Hot air elements, SSR, cabinet sensor	12 71	No hot air heating Max time of 1000sec exceeded
90 (min 360sec max 1000 sec)	Combination 170°C (338°F) • Hot air heating: ON 50% • Steam Heating: ON (when Hot air off) • Motor: ON (max rpm) • Humidity flap: Closed	none	
100 (min: 4x20sec; max: 4x60sec In case of „20“ check:	Controlling with all 4 fan speeds: Steady signal of rpm and pressure • Hot air heating: ON 50% • Steam Heating: ON (when Hot air off) • Motor: ON (max rpm first) • Humidity flap: Closed In diagnostic mode: P1, B4, rpm	20 71	Value out of allowable range Max time of 4x240sec exceeded
110 (4x 30Sec) Step 90,100 and 110 will run 1x for each rpm setting! In case of „70“ check:	Measuring at all 4 fan speeds: Calibration value: Combination • Hot air heating: ON if needed • Steam Heating: ON (when Hot air off) • Motor: ON (max rpm first) • Humidity flap: Closed In diagnostic mode: P1, B4, rpm	70	Calibration value not in expected range (logic)
	Step 90,100 and 110 will run 1x for each rpm setting!		
900	End – Exit diagnostic program and set DIP 1 to OFF		

NOTE: For immediate data storage switch unit off and on again!

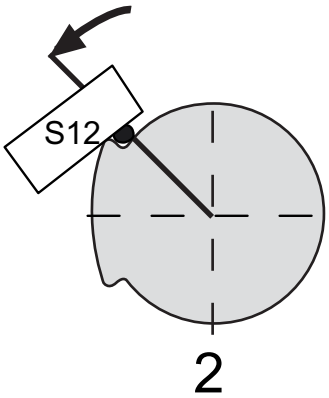
Status: 01.09.2007

Control Drain Valve 54.00.357

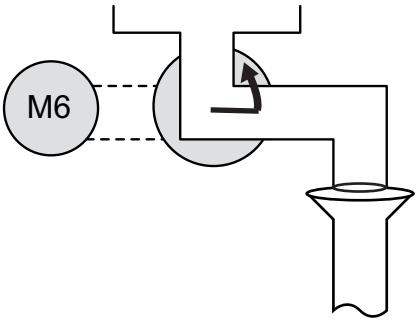
1 - Drain valve: position cooking
2 - Drain valve: position cooking Clean Jet
S12 - Micro switch Drain valve
M6 - Clean Jet Pump

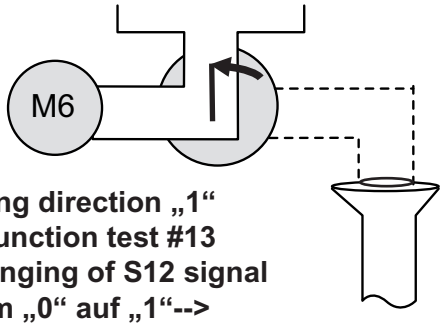


1

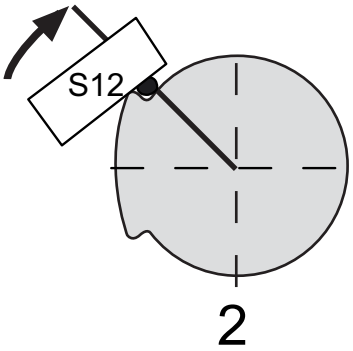


2

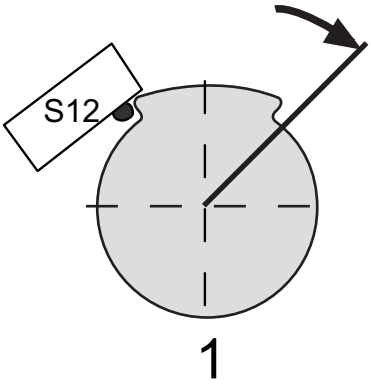




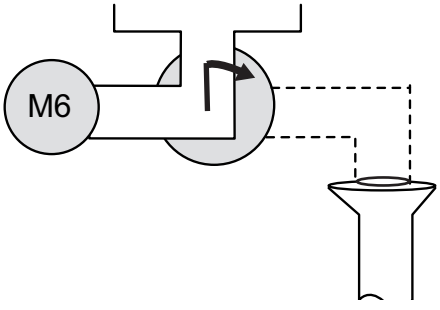
Using direction „1“ in function test #13 changing of S12 signal from „0“ auf „1“--> Drain closed --> CleanJet

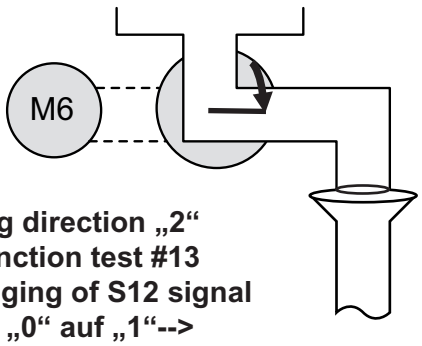


2



1

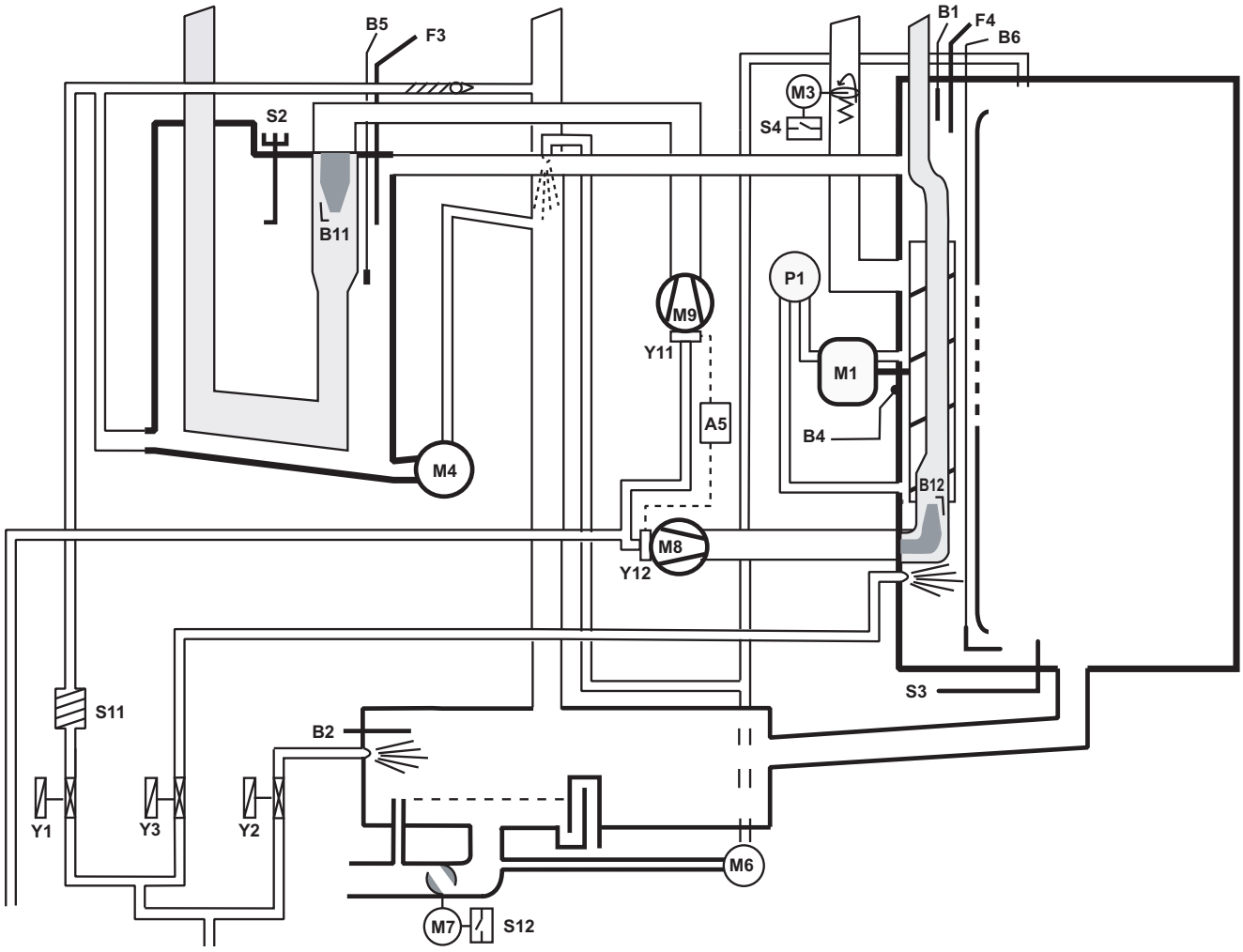




Using direction „2“ in function test #13 changing of S12 signal from „0“ auf „1“--> Drain open --> cooking

Notes:

SCC Gas from 04-2004



A5	Ignition module
B1	Thermocouple interior cabinet
B2	Thermocouple quenching
B4	Thermocouple humidity
B5	Thermocouple steam generator
B6	Thermocouple core temperature
B11	Ignition/monitoring electrode steam
B12	Ignition/monitoring electrode hot air
F3	Safety thermostat steam generator 135°C
F4	Safety thermostat interior cabinet 360°C
Y1	Solenoid valve filling
Y2	Solenoid valve quenching
Y3	Solenoid valve moistening
Y11	Gas valve steam
Y12	Gas valve hot air
M1	Fan motor
M3	Humidity motor
M4	SC-pump
M6	CleanJet pump
M7	Drain valve
M8	Gas blower motor hot air
M9	Gas blower motor steam
S2	Level electrode
S3	Reed switch door contact
S4	Micro switch humidity motor
S11	CDS sensor
S12	Micro switch drain valve
P1	Pressure sensor humidity

Only oor untis 201 - 202

A6	Ignition module hot air bottom (with jumper)
M2	Fan motor top (with jumper)
M10	Gas blower motor hot air bottom
Y13	Gas valve hot air bottom
B13	Ignition/monitoring electrode hot air bottom

Notes:

Yearly maintenance of the burner components is needed.

Workscope: Cleaning of Burner head,

Cleaning of Ignition electrode

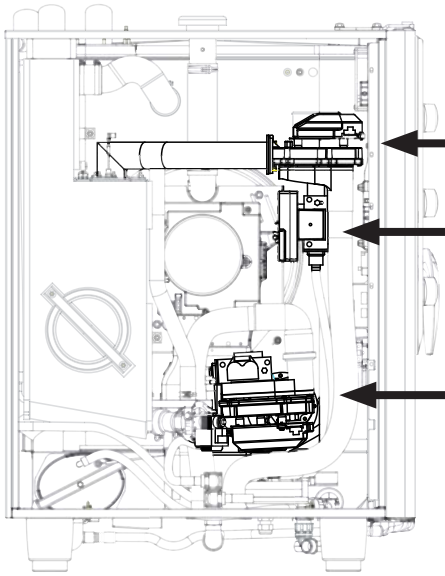
Cleaning interior of blower housing and air intake hose

Flue gas analysis

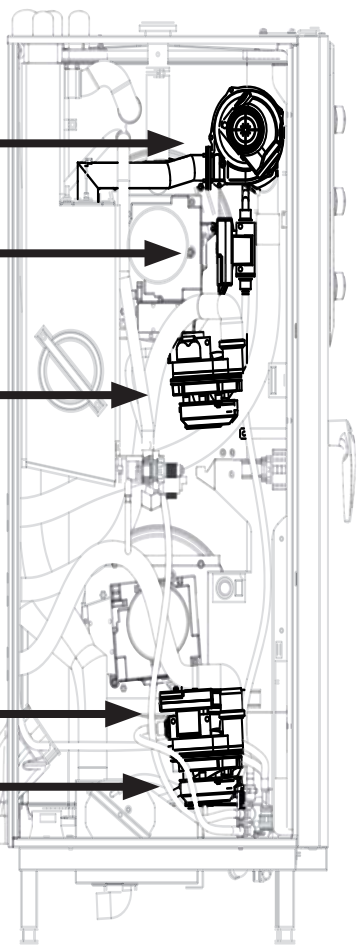
Basic info about SCC Gas

Identification of the different gas burners / Gas blowers:

SCC 61 - 62 - 101 - 102



SCC 201 - 202



Steam Blower

Steam Gas valve with
common ignition box for
Steam **and** Hot Air (top) fitted

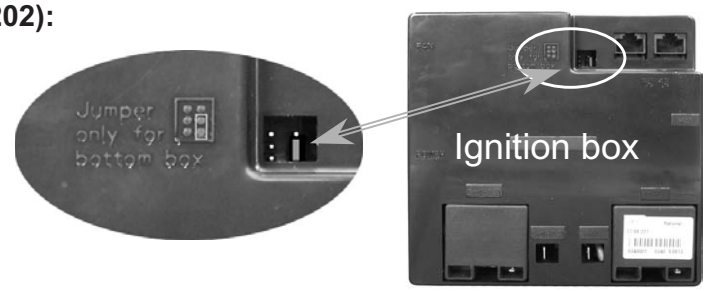
Hot Air blower (top)

Hot Air (bottom) Gas valve with
second ignition box fitted

Hot Air blower bottom
(ignition box fitted)

Ignition box of Hot Air Blower, Bottom (201-202):

Jumper must ONLY be set
on Ignition Box for
Hot Air Blower Bottom (201 - 202)



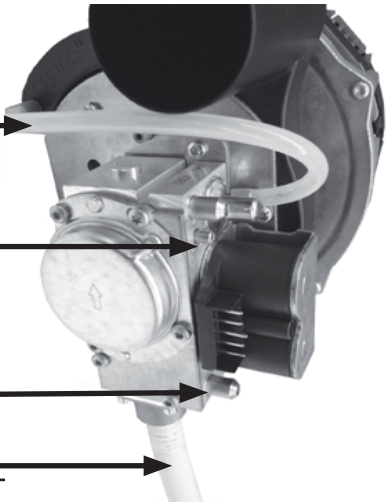
Gas valve components

Compensation hose

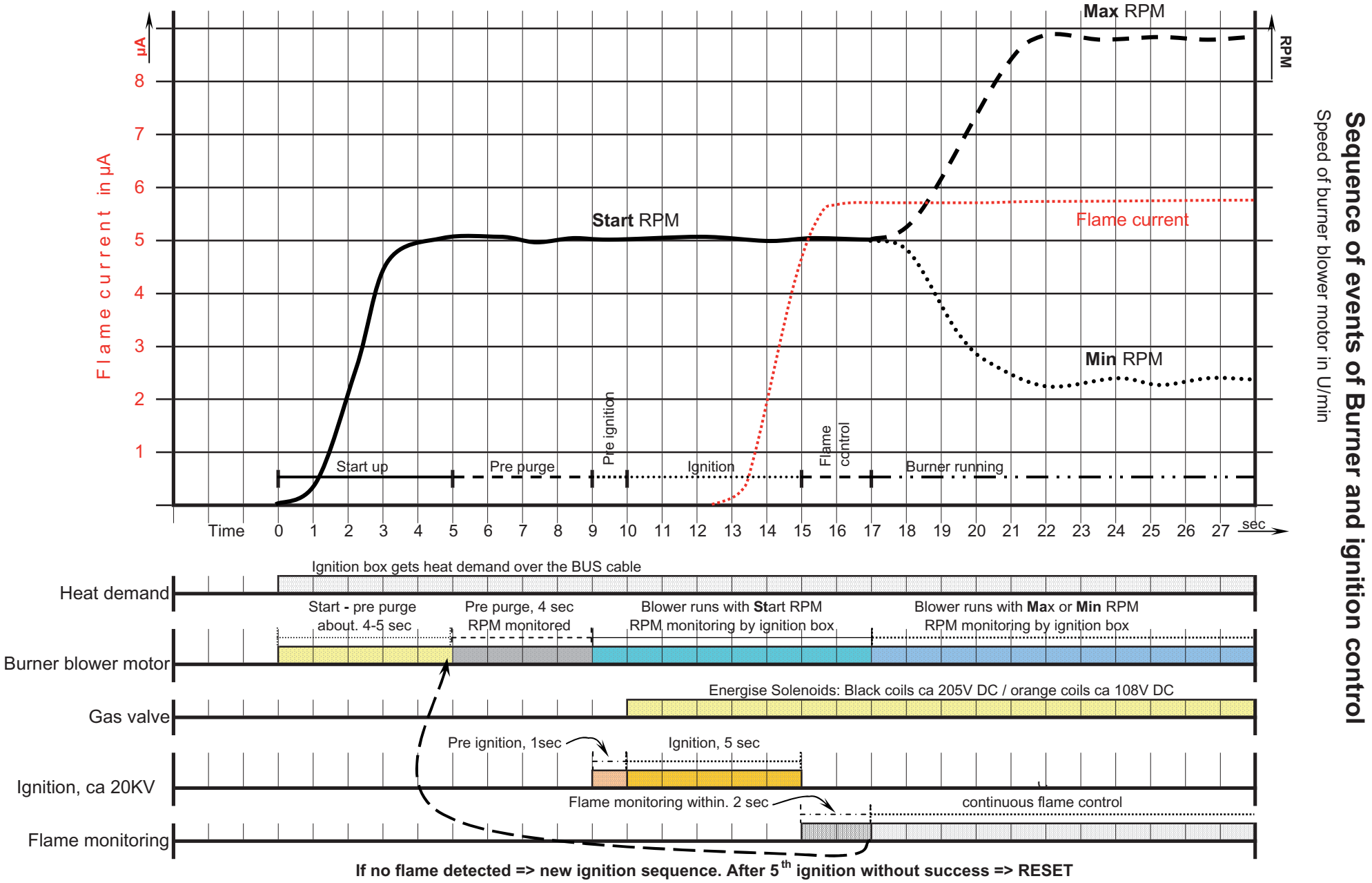
CO_2 Srew

Measuring test point for dynamic gas flow pressure

Gas supply



Sequence of events of Steam / Hot Air Burner (SCC as well as CM)



If no flame detected => new ignition sequence. After 5th ignition without success => RESET

Sequence of events of Burner and ignition control

Speed of burner blower motor in U/min

Gas conversion : SCC Gas

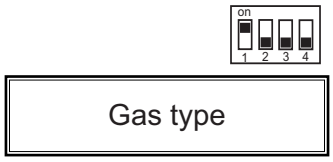
Whenever working on any gas component like:
Gas valve, gas blower and / or changing connected type of gas, a detailed flue gas analysis MUST be done using adequate CO and CO2 measuring equipment!
This shall ONLY be done by trained technicians!
Always check appliance for possible gas leakages!

Danger:
Changing the gas type of your SelfCooking Center or Combi Master shall only be done if you have a ue gas analyser at hand. Changing the gas setting only by adjusting the CO2 screw will result in an unsafe ue gas condition and is dangerous to life and will damage the equipment.

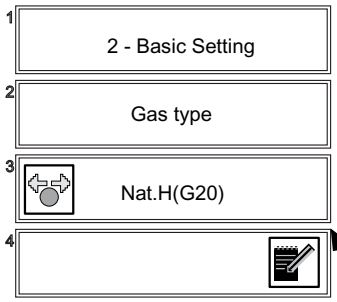
Select Basic Settings:

A) • Switch on unit
   • Open control panel
   • Set DIP switch 1 on PCB to „ON“ position
   • Select „Basic Settings

B) At „Basic Settings“ select position „Gas type“

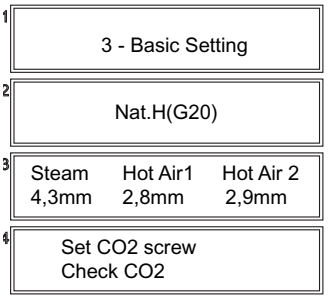


C) Press key and select with the central dial the new gas type
G20=Natural Gas H, G25=Natural Gas L, G30=3BP, G31=3P, 13A=Natural Gas Japan

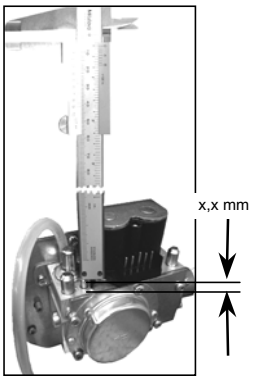


D) Confirm new gas setting by pressing the „Store“ key.

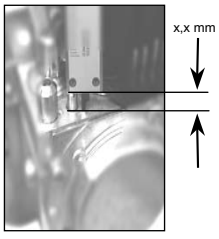
E) Select 3-Basic settings for average CO2 length setting.

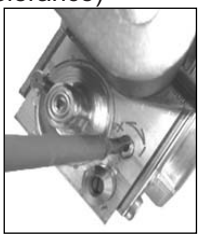


Note: Setting this screw to the given length shall ONLY bring the unit into working condition with the newly supplied gas.
This does NOT replace flue gas analysis or make the flue gas analysis obsolete!



F) Set the CO_2 screw according the values of the display or according the table „Values for burner adjustments“(! ! ! Set all CO_2 screws ! ! !)
If the mm setting of CO2 screw is too high, turn CO_2 screw first 2 turns clockwise and then to the requested length (Screw adjustment tolerance)





G) Switch unit OFF and ON again to store newly gas type setting!

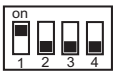
H) To exit service program set DIP switch 1 to „OFF“ position

I) **Perform a complete ue gas analysis at Max speed of each burner at the „Function Test“ ,as well as a cross-check of CO_2 at Min speed of each burner at the „Function Test“**

Gas Steam Bower	Gas Hot Air Bower Top	Gas Hot Air Bower bottom

Adjustment of installation altitude above sea level
SCC Gas from 04 - 2004

Note: The altitude settings of 0-499 and 500-999m are identical.
Therefore resetting of installation altitude needs to be done only when installing above 1000m (3280ft) or below sea level (i.e. Red Sea)

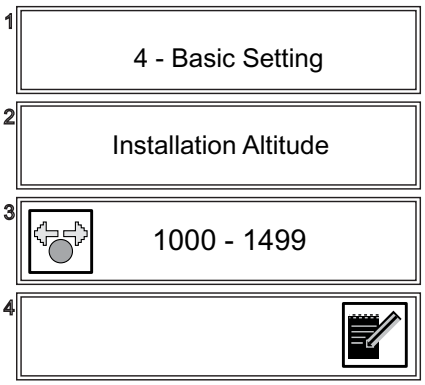


A) - Switch unit ON
- Open control panel
- Set DIP switch 1 on PCB to „ON“ position

Installation Altitude above sea level

B) At Basic Settings select position 4 - Installation altitude

C) Press Dial key and select desired altitude.

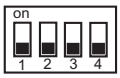


Possible altitude selection:

-500	**-**	**-1m**
0	**-**	**499m**
500	**-**	**999m**
1000	**-**	**1499m**
1500	**-**	**1999m**
2000	**-**	**2499m**
2500	**-**	**2999m**
3000	**-**	**3499m**
3500	**-**	**3999m**
4000	**-**	**4499m**
4500	**-**	**4999m**

D) Confirm new altitude setting with „Store“ key

E) Switch unit OFF and ON again to store new setting!



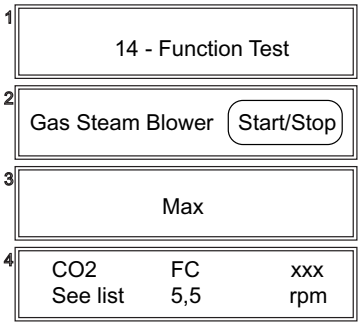
F) To exit service program set DIP switch 1 to „OFF“ position

Perform a complete flue gas analysis at Max speed of each burner at the „Function Test“ ,as well as a cross-check of CO2 at Min speed of each burner at the „Function Test“

Flue gas analysis: SCC gas

Before you carry out a ue gas analysis
check input gas ow pressure when burner is running
- **Switch on unit. Select any mode and cooking time. Wait till burner works**
- **Check input gas ow pressure**
- **See correct values of input ow pressure on serial plate**
- **If necessary adjust gas input pressure**

Flue gas analysis at MAX rpm - Cross-check of CO2 at MIN rpm
NOTE: Components are NOT protected against overload during function test!



Select „Function Test“:

A)
- Switch on unit
- Open front panel
- Set DIP switch 1 on PCB to „ON“ position
- Select „Function Test“

B) Select at „FunctionTest“ the position „Gas Steam Burner“

C) Press key and select „Max“ rpm, if it‘s not already selected

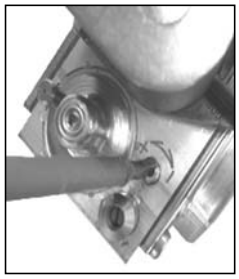
Activate the burner with the „Start“ key.

D) Note: Start key is used as a switch and will automatically deactivate after 4 minutes

Display 4 indicates the desired CO_2 value, e.g. 9,2%, flame current, i.e. 5,2µA and the corresponding rpm of the blower motor.

E) Place flue gas testing nozzle in correct flue outlet

F) „Adjust CO_2 to given value by turning CO_2 screw on gas valve. You also can find that value on table „Values for burner adjustments“



- If CO_2 value is too low => turn CO_2 screw anti clockwise (+ direction),
- If CO_2 value is too high => turn CO_2 screw first 2 turns clockwise (- direction), and than slowly anti clockwise (+ direction) until you get the indicated CO_2 value. (Screw adjustment tolerance).

- CO value must be below 300ppm

G) Press „Stop“ key. Blower will stop.

Flue gas analysis: SCC Gas

1	14 - Function Test
2	Gas Steam Blower (Start/Stop)
3	Max
4	CO2 FC xxx See list 5,5 rpm

H) Press key and select „Min“ speed.

I) Activate the burner with the „Start“ key.
Note: Start key is used as a switch and will automatically deactivate after 4 minutes

Display 4 indicates the desired CO_2 value, e.g. 9,2%, flame current, i.e. 5,2µA and the corresponding rpm of the blower motor.

J) For CO_2 values also refer to table „Values for burner adjustment“ in this manual.
Carry out a CO_2 measurement to cross-check CO_2 value only.

K) If CO_2 value is out of allowed tolerance
=> Change gas valve
Press „Stop“ key. Blower will stop.

L) Select position 15 „Gas Hot Air Blower Top“

1	15 - Function Test
2	Gas Hot Air Blower Top (Start/Stop)
3	Max
4	CO2 FC xxx See list 5,5 rpm

M) Press key and select „Max“ rpm, if it‘s not already selected

N) Repeat steps D - G at „Max“ blower speed.
NOTE: Adjust CO_2 to given value by turning CO_2 screw on gas valve !!

O) Press Key and select „MIN“ blower speed.

P) Repeat steps H-K at „MIN“ blower speed.
Carry out a CO_2 measurement to cross-check CO_2 value only.
If CO2 value is out of allowed tolerance
=> Change gas valve

SCC201 and SCC202 only:

1	16 - Function Test
2	Gas Hot Air Blower Bottom (Start/Stop)
3	Max
4	CO2 FC xxx See list 5,5 rpm

Q) Select position „Gas Hot Air Blower Bottom“

R) Press key and select „Max“ rpm, if it‘s not already selected

S) Repeat steps D - G at „Max“ blower speed.
NOTE: Adjust CO_2 to given value by turning CO_2 screw on gas valve !!

T) Press key and select „Min“ blower speed.

U) Repeat steps H - K at „Min“ blower speed.
Note: Cross-check CO_2 value only. If CO_2 value is out of allowed tolerance => Change gas valve

V) To exit service program set DIP switch 1 to „OFF“ position

Values for burner adjustments of gas units SCC / CM *(valid since January, 2007), entry in "red" => new*

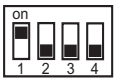
Type of gas	SCC - CM	Steam Burner				Hot Air Burner - Top Side				Hot Air Burner - Bottom Side (only at 201-202)			
		Input gas flow pressure	Adjustment of CO_2 - Screw	CO_2 at "MAX" rpm ± 0,2%	CO2 at "Min" rpm - 0,2% / + 0,5%	Input gas flow pressure	Adjustment of CO_2 - Screw	CO_2 at "MAX" rpm ± 0,2%	CO2 at "Min" rpm - 0,2% / + 0,5%	Input gas flow pressure	Adjustment of CO_2 - Screw	CO_2 at "MAX" rpm ± 0,2%	CO2 at "Min" rpm - 0,2% / + 0,5%
Natural Gas High (G20)	61	18 - 25 mbar	4,2 mm	9,4%	8,0%	18 - 25 mbar	3,6 mm	9,4%	8,3%				
	62	18 - 25 mbar	3,4 mm	9,4%	7,9%	18 - 25 mbar	3,5 mm	9,4%	8,0%				
	101	18 - 25 mbar	3,2 mm	9,4%	7,7%	18 - 25 mbar	3,3 mm	9,4%	7,7%				
	102	18 - 25 mbar	3,6 mm	9,4%	8,4%	18 - 25 mbar	3,1 mm	9,4%	8,6%				
	201	18 - 25 mbar	3,7 mm	9,4%	8,2%	18 - 25 mbar	3,3 mm	9,4%	7,8%	18 - 25 mbar	3,2 mm	9,4%	7,8%
	202	18 - 25 mbar	3,7 mm	9,5%	8,8%	18 - 25 mbar	3,2 mm	9,4%	8,7%	18 - 25 mbar	3,2 mm	9,4%	8,7%
Natural Gas Low (G25)	61	18 - 25 mbar	4,8 mm	9,3%	8,2%	18 - 25 mbar	4,6 mm	9,3%	8,0%				
	62	18 - 25 mbar	4,1 mm	9,3%	7,8%	18 - 25 mbar	4,3 mm	9,3%	7,7%				
	101	18 - 25 mbar	3,8 mm	9,3%	7,8%	18 - 25 mbar	3,8 mm	9,3%	7,8%				
	102	18 - 25 mbar	5,5 mm	9,3%	8,0%	18 - 25 mbar	3,8 mm	9,3%	8,3%				
	201	18 - 25 mbar	5,1 mm	9,3%	9,0%	18 - 25 mbar	3,9 mm	9,3%	7,8%	18 - 25 mbar	3,9 mm	9,3%	7,8%
	202	18 - 25 mbar	4,8 mm	9,4%	8,9%	18 - 25 mbar	3,8 mm	9,3%	8,6%	18 - 25 mbar	3,8 mm	9,3%	8,6%
LPG 3BP (G30)				3B/P	100% Butane	3B/P	100% Butane			3B/P	100% Butane	3B/P	100% Butane
	61	30 - 57 mbar	2,5 mm	10,4%	11,6%	9.3%	10,6%	30 - 57 mbar	2,3 mm	10,4%	11,6%	9,4%	10,4%						
	62	30 - 57 mbar	2,4 mm	10,4%	11,6%	8.5%	9,2%	30 - 57 mbar	2,4 mm	10,4%	11,6%	8,1%	9,6%						
	101	30 - 57 mbar	2,4 mm	10,4%	11,6%	8.4%	9,2%	30 - 57 mbar	2,3 mm	10,4%	11,6%	8,2%	9,6%						
	102	30 - 57 mbar	2,5 mm	10,4%	11,6%	8.9%	10,1%	30 - 57 mbar	2,4 mm	10,4%	11,6%	9,4%	10,3%						
	201	30 - 57 mbar	2,5 mm	10,4%	11,6%	8.8%	9,8%	30 - 57 mbar	2,4 mm	10,4%	11,6%	8,8%	9,6%	30 - 57 mbar	2,4 mm	10,4%	11,6%	8,8%	9,6%
	202	30 - 57 mbar	2,5 mm	10,4%	11,6%	9.7%	11,0%	30 - 57 mbar	2,3 mm	10,4%	11,6%	9.7%	10,1%	30 - 57 mbar	2,3 mm	10,4%	11,6%	9.7%	10,1%
LPG 3P (G31)	61	30 - 57 mbar	2,9 mm	11,1%	9,4%	30 - 57 mbar	2,5 mm	11,1%	9,8%				
	62	30 - 57 mbar	2,5 mm	11,1%	8,9%	30 - 57 mbar	2,5 mm	11,1%	9,2%				
	101	30 - 57 mbar	2,4 mm	11,1%	9,3%	30 - 57 mbar	2,7 mm	11,1%	9,7%				
	102	30 - 57 mbar	2,6 mm	11,1%	9,7%	30 - 57 mbar	2,5 mm	11,1%	9,9%				
	201	30 - 57 mbar	2,6 mm	11,1%	9,6%	30 - 57 mbar	2,4 mm	11,1%	9,1%	30 - 57 mbar	2,4 mm	11,1%	9,0%
	202	30 - 57 mbar	2,5 mm	11,1%	10,7%	30 - 57 mbar	2,3 mm	11,1%	10,0%	30 - 57 mbar	2,3 mm	11,1%	10,1%
Natural gas Japan (13A)	61	18 - 25 mbar	4,2 mm	9,5%	8,6%	18 - 25 mbar	3,5 mm	9,5%	8,4%				
	62	18 - 25 mbar	3,7 mm	9,5%	7,8%	18 - 25 mbar	3,4 mm	9,5%	8,0%				
	101	18 - 25 mbar	3,1 mm	9,5%	8,0%	18 - 25 mbar	3,0 mm	9,5%	8,2%				
	102	18 - 25 mbar	3,3 mm	9,5%	8,5%	18 - 25 mbar	3,1 mm	9,5%	8,5%				
	201	18 - 25 mbar	3,4 mm	9,5%	8,4%	18 - 25 mbar	3,1 mm	9,5%	8,2%	18 - 25 mbar	3,1 mm	9,5%	8,2%
	202	18 - 25 mbar	3,5 mm	9,5%	9,1%	18 - 25 mbar	3,1 mm	9,5%	8,8%	18 - 25 mbar	3,1 mm	9,5%	8,8%

How to carry out a burner adjustment:

1.) Check the gas type adjustment at "Basic Settings".
2.) Check the given length of the CO_2 screw. See correct values from table above.
3.) Check gas input flow pressure. See correct values from table above.
4.) Select "Gas Steam Blower" at "Function Test". Exhaust temperature should be during the "gas flow analysis" above 200°C.
Carry out first a CO_2 **"Max"** adjustment.
Setting of exhaust values only by CO_2 screw adjustment. CO_2 = see table above, CO = below 300ppm, if possible below 100ppm.
Carry out the CO_2 **"Min"** measurement. At CO_2 **"Min"** measurement **no** adjustment necessary on the CO_2 screw => **! ! ! Check only the CO_2 values ! ! ! !**
Repeat same measurements at "Gas Hot Air Blower Top" and "Gas Hot Air Blower Bottom (201-202)".
5.) Recommendation: Note down all actual values (mm, CO_2, CO) inside the unit. This will help your fellow technician in fault finding!

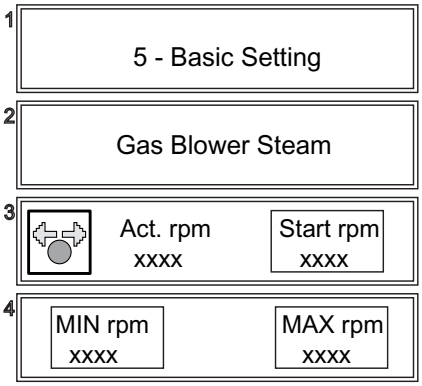
Changing gas blower speed SCC Gas (MAX, Start, MIN rpm)

A) - Switch unit ON
- Open control panel
- Set DIP switch 1 on PCB to „ON“ position



B) At Basic Settings select i.e. position 5 - Gas Blower Steam

C) The factory stored blower speed is shown at MAX, Start und MIN.



D) To change the rpm of MAX, Start and MIN, select the desired step.

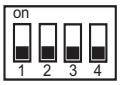
E) Set the new speed (given by the manufacturer) using the central dial.

F) To confirm press the „Dial“ key again.

G) In order to change the other rpm settings of the same burner repeat steps D-F accordingly.

H) Switch unit OFF and ON again to store newly gas type setting!

I) To exit service program set DIP switch 1 to „OFF“ position



Perform a complete flue gas analysis at Max speed of each burner at the „Function Test“ ,as well as a cross-check of CO2 at Min speed of each burner at the „Function Test“

Flash SCC Software

<u>USB stick MUST be formatted in FAT (FAT16) format.</u>
NOTE: Only use the standard USB Flash stick for SCC Flash update!
This RATIONAL configured USB Flash memory stick can be ordered under part number: 87.00.010

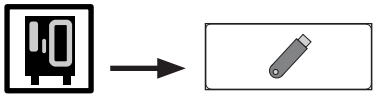
Software can only be updated to the next higher version. Flashing software versions prior to the existing version is NOT possible!

The actual software version can be downloaded from:
www/rational-ag.de/service/technical_documentation/SCC-Line/Software

Additionally the software on the USB stick can be automatically updated using the „update.exe“ file on the memory stick.
Note: A valid internet connection must be available on your computer.

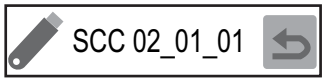
NOTE!
Software update on a unit with unknown software version (in case a pcb from spare part stock is used) or in case the external EEPROM was faulty please observe the procedure on the following page.

The software can be updated by the customer using two different ways:



Connect the USB stick to the usb interface at the bottom left hand corner of the control panel

Press Funktion and USB key



The update icon will show when a USB stick with software is connected

In window 4 the Software version of the USB stick is displayed.

Touch Update-key once starts the update process, “UPDATE” is shown on the displays.

“ON- Please wait” Is shown;

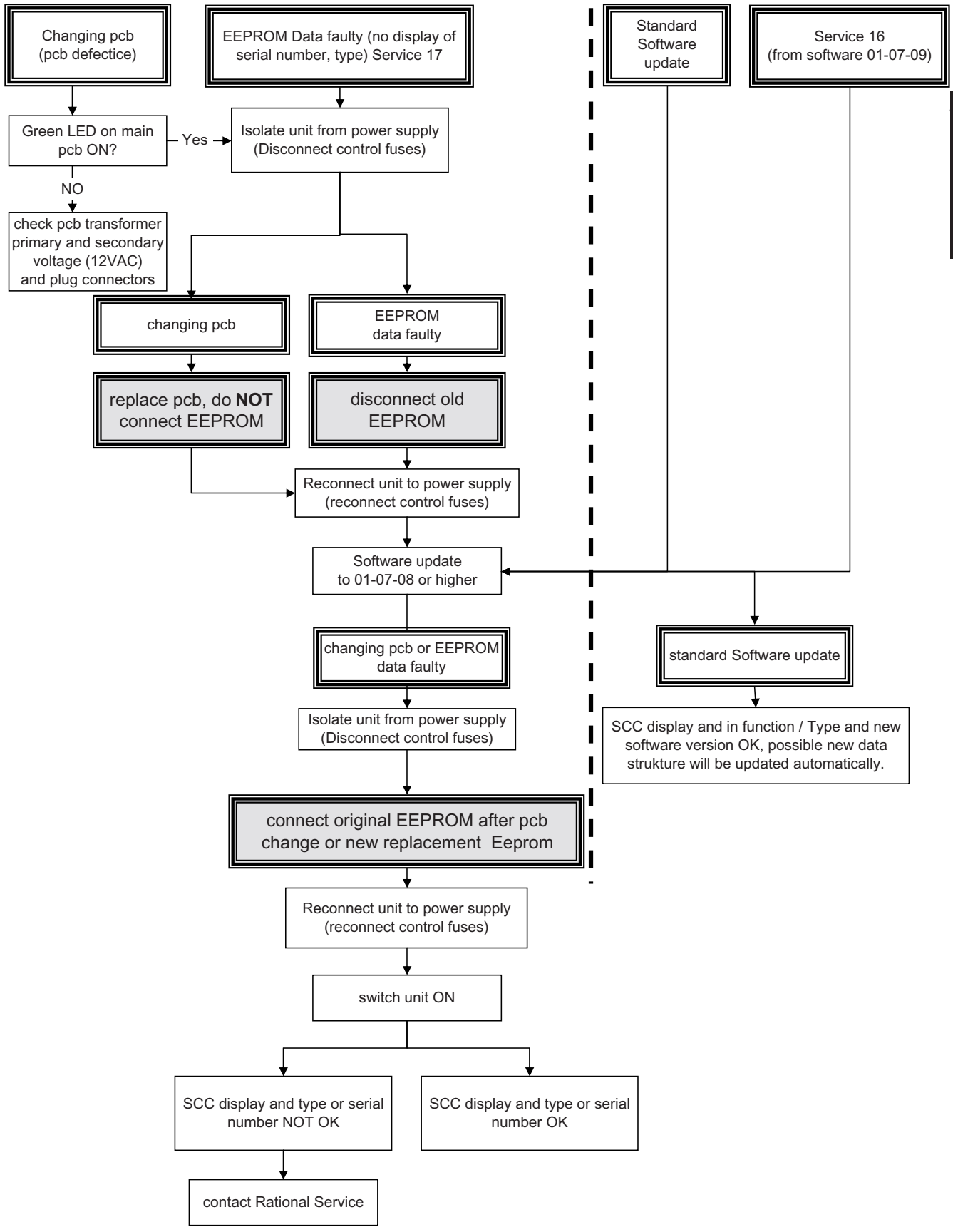
Disconnect the USB Stick only after the 9 main cooking icons are displayed.

For <u>Standard Software Update</u> please proceed as follows:

1. Switch unit on
2. Wait until the operator mode of the SelfCooking Center is displayed.
3. Connect the USB stick with the actual software version to the USB interface of the Rational SelfCooking Center.
4. Switch unit off and on again.
   The unit will display „UPDATE“ followed by „Please don‘t touch“.
   After the operator mode of the SelfCooking Center is displayed the USB stick can be removed from the unit.

Please make sure your customer has always the latest software on his unit.
Please make sure you have the latest update.exe dated December, 6th, 2004 (12.06.2004) on your USB memory stick.

Changing SCC pcb / changing SCC EEPROM / Software update


Changing pcb (pcb defectice)
EEPROM Data faulty (no display of serial number, type) Service 17
Standard Software update
Service 16 (from software 01-07-09)
Green LED on main pcb ON?
Yes
Isolate unit from power supply (Disconnect control fuses)
NO
check pcb transformer primary and secondary voltage (12VAC) and plug connectors
changing pcb
EEPROM data faulty
replace pcb, do NOT connect EEPROM
disconnect old EEPROM
Reconnect unit to power supply (reconnect control fuses)
Software update to 01-07-08 or higher
changing pcb or EEPROM data faulty
standard Software update
Isolate unit from power supply (Disconnect control fuses)
SCC display and in function / Type and new software version OK, possible new data strukture will be updated automatically.
connect original EEPROM after pcb change or new replacement Eeprom
Reconnect unit to power supply (reconnect control fuses)
switch unit ON
SCC display and type or serial number NOT OK
SCC display and type or serial number OK
contact Rational Service

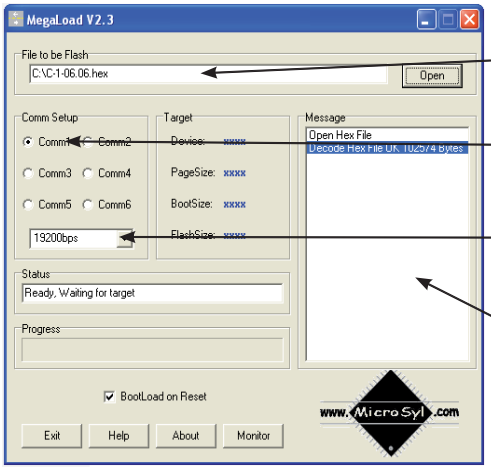
Software update CM units

1 Generel

To update a CM unit of new generation you need:
- CM-Software e.g. C-1-06.05.hex
- software „Megaload.zip“.

Both are available on the Rational Service internet page under:
„Technical documentation/Software update SCC-Line/CM“.

- download CM-Software e.g.“C-1-06.05.hex“
- download „megaload.zip“ to PC,
- open file„megaload.zip“,
- Start the program Setup.exe and follow the description on the screen,
- Start the program Megaload and carry out basic settings.



Open CM Software; e.g.: C-1-06.05.hex

Select desired interface on the PC, e.g. Com1

Transfer rate **must** be set to 19200 bps.

On the „Message“ window the progress of the download software download is indicated.

Now You can load the software:
- **direct from PC to CM unit 4** or
- with **Flash-Box 87.00.037 to CM unit 2, 3**.

2 Load software to Flash-Box

Flash-Box kit contains of:

- Flash-Box
- Adapter cable RS 232 and USB-cable (only required for down loading the unit soft-ware to the Flash-Box).

- Open lid of the Flash-Box
- Set DIP - switch 2 to „ON“. (other switches remain in the „OFF“ position)

- Connect RS 232 adapter cable to Flash-Box and to the selected interface (e. g. COM 1) of the PC.
- Connect USB-cable to Flash-Box and PC.
- After the USB cable was connected the fi les which are transferred will appear on the Message window. An end sign indicates that the transfer is completed.
- On the Flash-Box set DIP- switch 2 to „OFF“ and 3 to „ON“ (the other switches remain „OFF“). Flash-Box is ready for use.

Copying unit software from PC to CM Flash-Box

1.

- Open lid of the Flash-Box
- Set DIP - switch 2 to „ON“.
  (other switches remain in the off position)

2. Connect RS 232 adapter cable (item 2) to Flash-Box and to the selected interface (e. g. COM 1) of the PC

3. Start program Megaload and open flash software (e.g.: C-1-06.02.hex)

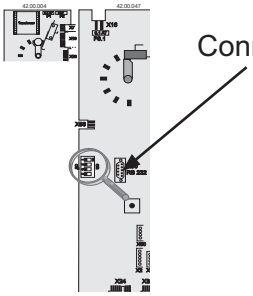
4. Connect USB-cable (item 3) to flash box and PC

5. After the USB cable was connected the files which are transferred will appear on the Message window. An end sign indicates that the transfer is completed.

6. On the flash box set DIP- switch 2 to OFF and 3 to ON (the other switches remain off). Flash-Box is ready for use

Update unit software with CM Flash-Box to unit

1. Switch off unit with mode switch and open front panel.
Check that DIP 3 is in the ON position.

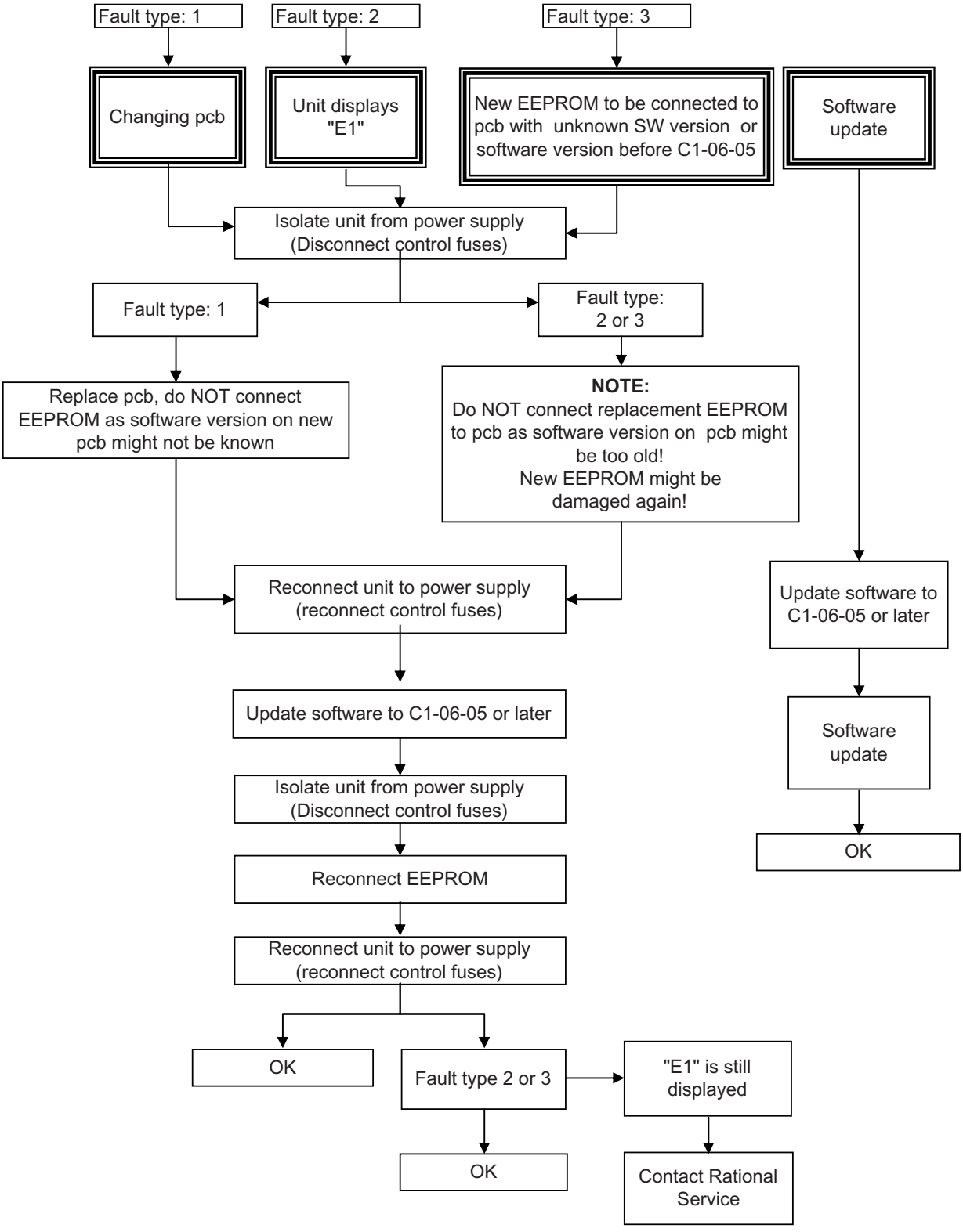
2. 

Connect Flash-Box to RS 232 interface of the operator pcb.

3. Switch on CM unit. After the software update is completed the unit switches off and back on again.

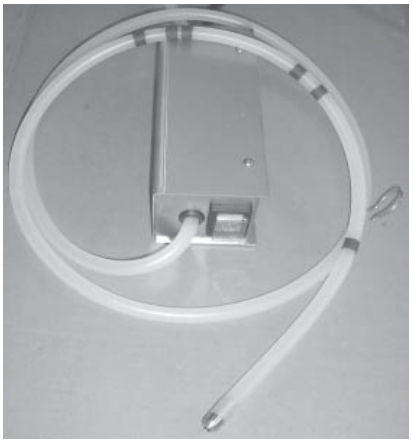
4. Now the Flash-Box can be removed and the unit can be used.

Fault tree: Changing pcb / changing EEPROM / Fault "E1"


Fault type: 1
Fault type: 2
Fault type: 3
Changing pcb
Unit displays "E1"
New EEPROM to be connected to pcb with unknown SW version or software version before C1-06-05
Software update
Isolate unit from power supply (Disconnect control fuses)
Fault type: 1
Fault type: 2 or 3
Replace pcb, do NOT connect EEPROM as software version on new pcb might not be known
NOTE: Do NOT connect replacement EEPROM to pcb as software version on pcb might be too old! New EEPROM might be damaged again!
Reconnect unit to power supply (reconnect control fuses)
Update software to C1-06-05 or later
Update software to C1-06-05 or later
Software update
OK
Isolate unit from power supply (Disconnect control fuses)
Reconnect EEPROM
Reconnect unit to power supply (reconnect control fuses)
OK
Fault type 2 or 3
"E1" is still displayed
OK
Contact Rational Service

Notes:

User instruction electrical descaler pump



The descaler pump 60.70.409 (230V) and 60.70.497 (110V) must only be used to fill chemical part number: 6006.0110 into steam generators of equipment bearing either of the following marks on the data plate:

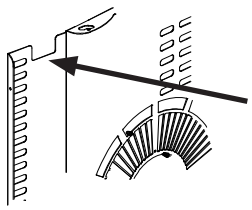
Warning!
When working with chemicals, i.e. aggressive cleaning materials, always wear protective clothing, goggles, face mask and gloves!

Caution:
Please observe all information given on the Material Safety Data Sheet of your descaling chemical!
Only personnel specially trained on handling hazardous materials shall follow the instructions below!
For further and detailed instructions please follow the descaling procedure given in the operator manual of the above mentioned units.

1. Unlatch the left side hinged rack and the air baffle. Swivel them towards the right side.

2. Insert the pump hose marked with rings into the steam inlet port at the rear left top corner of the interior cabinet.
The hose must be inserted at least to the following marking rings:

All electric heated units	3rd Ring 43cm (17“)
CM/SCC 61 and 62 Gas:	1st Ring 17cm (6,5“)
CM/SCC 101 and 102 Gas:	2nd Ring 31cm (12“)
CM/SCC 201 and 202 Gas:	3rd Ring 43cm (17“)



To prevent the hose from slipping out of the steam inlet port se cure the hook which is attached to the hose at 100cm (40”) from end of the hose onto the air baffle cut out for the core probe as indicated.

3. Insert the suction hose of the pump into the descaling liquid bottle. Please observe the below listed quantities for descaler used for the different model sizes. Given Quantities are average volumes and depending on Scale build up inside the steam generator.

Descaler volume for electric units (quantity in gal given as US gallons!)

SCC/CM 61	SCC/CM 62	SCC/CM 101	SCC/CM 102	SCC/CM 201	SCC/CM 202
3,6 L/0,95gal	6 L/ 1,6gal	6 L/1,6gal	8,5 L/2,25gal	9 L/2,4gal	11,6 L/3,06gal

Descaler volume for gas units SCC and CM

SCC/CM 61G	SCC/CM 62G	SCC/CM 101G	SCC/CM 102G	SCC/CM 201G	SCC/CM 202G
4 L/1,1gal	6 L/1,6gal	7 L/1,85gal	9 L/2,4gal	8 L/2,1gal	11 L/2,9gal

4. Lean the cabinet door close and fill the above mentioned quantity of descaler at 10 sec intervals into the steam generator

NOTE: Descaling liquid can react very violently with the scale inside the steam generator!
Should any foam appear at the steam inlet port stop filling and wash the interior cabinet with fresh water.

5. After filling the required quantity remove the hose from the steam inlet port. Pump the remaining liquid from inside the hose back into the descaler container bottle

6. **Flush and rinse pump and pump hoses with fresh water.**
Caution: not rinsing can cause internal corrosion of the pump.

7. Rinse the cabinet with fresh water.

Follow the further instructions given in the users manual for completing the descaling

Descaling interrupt SCC:

As long as no descaler was filled into the steam generator the „Arrow back“ in window 1 is still showing.
After the descaler was confirmed to be filled the only way to interrupt the descaling process is to:

- Switch unit OFF and ON again
- Press „Abort“
- Remaining time of 1:08 will be displayed
- If now the key „Aborted“ is pressed again and the unit is switched OFF and ON again a remaining time of 23 min will show.
- After another 2 min this time display will drop to 5 min
- Now the steam generator will be flushed 2x. After this the „Arrow Back“ will be shown.
- By touching this key the descaling program will be exited

Note: Rinse the cabinet thoroughly with fresh water and operate the unit in steam mode for some minutes.

- Now the unit can be accessed for cooking again.

Descaling interrupt CM:

- Switch unit OFF and ON again.
- Press core temperature key once.
- Remaining time of 20 min will be shown. During this time the steam generator will be automatically flushed with fresh water and a steam cycle will follow.

Notes: Descaler foot pump is available under service part number 6004.0203

To send by E-Mail or save filled form update to Adobe Reader version 8 first!

Send by E-Mail

Print form

RATIONAL INSTALLATION / COMMISSIONING CHECKLIST SCC / CM

To be completed individually for each ***Rational*** Combi installation.
This checklist is to be completed and returned within 14 days of installation / commission to validate warranty.

Customer address:	Name	
	Company	
	Street	
	ZIP code	
	Town	
	Country	
Phone:		
Unit serial number:		
Commissioned by: (RSP Partner):		
Date of installation:		
Date of commissioning:		

Installation complies ○ does not comply ○ with manufacturers specifications.

Please fill all information required into the embossed fields.

If the measured values are NOT complying with the values in the installation manual please inform the customer and your Rational dealer / office.

We confirm the installation was done according to the attached installation checklist, the installation manual and all national and local codes which ever may apply.
The equipment was handed over free of defects. Operation and maintenance of the equipment was explained.

---------- ----------

Sign / Date RSP / Dealer SIgn / Date customer

1. Perimeter clearances	**all units**	**measured space:**
left side minimum	50 mm	
left side 201 / 202 electric unit minimum	500 mm	
left side recommended for all units for service or with adjacent heat source:	500 mm	
rear side	50 mm	
right side	50 mm	

2. Levelling and floor fixing		**yes**	**no**
Electric 61, 62, 101, 102	Mounting surface is level?	○	○
	Unit is level?	○	○
Gas 61, 62, 101, 102	Mounting surface is level?	○	○
	Stand is fixed to the floor?	○	○
	Unit is secured to mounting surface?	○	○
Electric and Gas 61, 62, 101, 102	Transport trolley is level with unit and stand	○	○
	is fixed to the floor (optional)?	○	○
Electric and Gas 201, 202	Unit is level?	○	○
	Unit is fixed to the floor?	○	○
	Area under unit level?	○	○
	Trolley stands level inside the unit?	○	○

3. Water connection	**yes**	**no**
Cold water service shut off valve for each unit?	○	○
Shut off valve accessible from front by operator?	○	○
All units: Min: 150Kpa (1,5 bar, 22 psi,), Max 600Kpa (6bar, 88psi)	○	○
Water filtration / treatment system installed?	○	○

Manufacturer and type of water filter

Measured water hardness at filter inlet? Measured water hardness at filter outlet?

Measured water pressure at filter outlet?

4. Drain	**yes**	**no**
Steam temperature resistant pipe (I.e. part # 8720.1031)? (No flexible hose)	○	○
Table unit with P-trap or open drain	○	○
Floor unit with P-trap or open drain? (open drain ending NOT under the unit)	○	○
Combi Duo connected with separate P-trap or open drain for each unit	○	○

5. Electrical connection - Observe Local and National Codes!

a) measured voltage L1- L2 ____ L1 - L3 ____ L2 - L3 ____

L1 - N ____ L2 - N ____ L3 - N ____ N - PE ____

	yes	**no**
b) Unit connected to equipotential bonding?	○	○
c) Does indicated voltage on the unit data correspond with the measured voltage?	○	○
d) 3 phase breaker installed?	○	○
e) Breaker accessible from front by operator?	○	○

f) Breaker size / Fuse rating A ____

g) Measured amps per phase (electric unit) L1 ____ L2 ____ L3 ____

h) Measured amps per phase (gas unit) A ____

6. Electrical connection - Observe Local and National Codes!	**yes**	**no**
Required diameter of gas line to each Combi: All units 3/4" minimum	○	○
Individual gas shut off valve installed for each unit?	○	○

Type of connected gas (i.e. LPG, Natural gas, G20, G30): ____

Measured gas pressure with unit switched off?: ____

Measured gas pressure with unit switched on, when all other gas consumers in the kitchen are switch on? ____

At which altitude above sea level is the unit installed?: ____

Unit adjusted to installation height? (above 1000m above sea level or below sea level)	○	○
Flue gas analysis carried out?	○	○

measured CO2 value Hot Air 1 (61-202) ____ Hot Air 2 (201-202) ____ Steam (61-202) ____

measured CO value Hot Air 1 (61-202) ____ Hot Air 2 (201-202) ____ Steam (61-202) ____

7. Exhaust / Vent hood	**yes**	**no**
Exhaust / Vent hood installed?	○	○
Serial number Rational UltraVent		
Serial number Rational exhaust hood		
Free space between top egde of unit and lower edge of exhaust hood / ceiling in cm		

8. Function test / commissioning	**yes**	**no**
All electrical connections and plugs tight	○	○
All water connections tight and not leaking	○	○
All modes operational	○	○
All additional functions / features operational	○	○
Customer advised in basic operation and Programming	○	○
Customer advised in daily cleaning routine incl. door gasket	○	○
Customer advised in preventative maintenance (descaling, changing air inlet filter, door gasket cleaning, etc)	○	○

Comments:

Send by E-Mail

To save filled form open with Adobe Reader version 7 or later

Print form

INSPECTION LIST SCC / CM

To be completed individually for each ***Rational*** **SCC or CM** installation.
This checklist is your guide line for preventative maintenance on Rational SCC and CM.

Customer address:	Name	
	Company	
	Street	
	ZIP code	
	Town	

Unit serial number: Software version:

Preventative Maintenance Work Scope:	According Installation Manual		Comments:
Installation			
Placement - floor fixing of 201 - 202	◯ YES	◯ NO	
Water connection	◯ YES	◯ NO	
Type of water treatment (if installed)	◯ YES	◯ NO	
Drain	◯ YES	◯ NO	
Gas connection	◯ YES	◯ NO	
Electrical connection	◯ YES	◯ NO	
Door	**Function**		
Door lock	◯ YES	◯ NO	
Door catch	◯ YES	◯ NO	
Door hinges / screws	◯ YES	◯ NO	
Inner glass hinges	◯ YES	◯ NO	
Door gasket (steam tight at 100°C Steam)	◯ YES	◯ NO	
Door contact	◯ YES	◯ NO	
Trolley gasket (201-202)	◯ YES	◯ NO	
Castors of mobile trolley (201-202)	◯ YES	◯ NO	
Interior Cabinet			
Cabinet light	◯ YES	◯ NO	
Core probe	◯ YES	◯ NO	
Interior cabinet sensor	◯ YES	◯ NO	
Humidity flap not leaking air	◯ YES	◯ NO	
Air baffle	◯ YES	◯ NO	
Moistening nozzle free of scale	◯ YES	◯ NO	
Drain sieve properly mounted	◯ YES	◯ NO	
Corrosion at unit or accessory visible	◯ YES	◯ NO	

INSPECTION LIST SCC / CM

Preventative Maintenance Work Scope:	Function	Comments:
Water - Drain		
Dynamic water pressure	bar ____ kPa ____	
All water connections leak tight	◯ YES ◯ NO	
Hand shower and retracting mechanism	◯ YES ◯ NO	
Drain connection	◯ YES ◯ NO	
Quenching - drain box clean	◯ YES ◯ NO	
Drain valve SCC	◯ YES ◯ NO	
Steam generator		
Leak tight	◯ YES ◯ NO	
Steam generator pump - flushing	◯ YES ◯ NO	
Insulation steam generator ok	◯ YES ◯ NO	
Descale steam generator if needed	◯ YES ◯ NO	
Reset CDS indication	◯ YES ◯ NO	
Level electrode clean	◯ YES ◯ NO	
Electrical components		
Earth bonding	◯ YES ◯ NO	
All wire insulation undamaged	◯ YES ◯ NO	
All wires tightly secured	◯ YES ◯ NO	
All contacts of main contactor free (not stuck)	◯ YES ◯ NO	
Amp draw - Hot Air	L1 ____ L2 ____ L3 ____	
Amp draw - Steam	L1 ____ L2 ____ L3 ____	
Max temperature pcb	°C ____ °F ____	
Gas specific parts NOTE: Yearly burner maintenance needed!		
All gas connections leak tight	◯ YES ◯ NO	
Cleaning of burner head (TI 03-2007)	◯ YES ◯ NO	
Cleaning of ignition electrode	◯ YES ◯ NO	
Change blower gasket Steam and Hot Air if damaged	◯ YES ◯ NO	
Burner blower ok and free of dust / fat residues	◯ YES ◯ NO	
Visual inspection of external flue gas venting	◯ OK ◯ NO	
Dynamic flow pressure (unit in operation)	mbar ____ kPa ____	
CO2 max steam - flame current - CO ppm	% ____ µA ____ ppm ____	
CO2 min steam - flame current - CO ppm	% ____ µA ____ ppm ____	
CO2 max hot air top - flame current - CO ppm	% ____ µA ____ ppm ____	
CO2 min hot air top - flame current - CO ppm	% ____ µA ____ ppm ____	
CO2 max hot air bottom - flame current - CO ppm	% ____ µA ____ ppm ____	
CO2 min hot air bottom - flame current - CO ppm	% ____ µA ____ ppm ____	
Lenght of CO2 screw of gas valve in mm	Steam ____ Hot air top ____ Hot air bottom ____	

INSPECTION LIST SCC / CM

Preventative Maintenance Work Scope:	Function		Comments:
Control panel			
Control panel closing mechanism	◯ YES	◯ NO	
Control panel gasket and panel overlay	◯ YES	◯ NO	
Plug for opening control panel in place	◯ YES	◯ NO	
Dials	◯ YES	◯ NO	
Mode switch (CM)	◯ YES	◯ NO	
Temperature and time control	◯ YES	◯ NO	
Core probe function	◯ YES	◯ NO	
LED indicators	◯ YES	◯ NO	
PCB visual check (water marks etc)	◯ YES	◯ NO	
Air filter clean	◯ YES	◯ NO	
Exhaust / Vent hood			
Exhaust / vent hood installed	◯ YES	◯ NO	
Exhaust hood / lighting operational	◯ YES	◯ NO	
Serial number Rational UltraVent - Rational exhaust hood			
Free space between top egde of unit and lower edge of exhaust hood / ceiling in cm			
Function test / commissioning			
All electrical connections and plugs tight	◯ YES	◯ NO	
All electrical connections and plugs tight	◯ YES	◯ NO	
All modes operational	◯ YES	◯ NO	
All valid service error codes checked	◯ YES	◯ NO	
All max values of sensors resetted	◯ YES	◯ NO	
Humidity control functional	◯ YES	◯ NO	
Customer advised in basic operation and Programming	◯ YES	◯ NO	
Customer advised in preventative maintenance (descaling, changing air inlet filter, door gasket cleaning, etc)	◯ YES	◯ NO	
Service phone number entered	◯ YES	◯ NO	
Chef line phone number entered	◯ YES	◯ NO	
Demonstration CleanJet	◯ YES	◯ NO	
Safe Service data - HACCP data to usb stick	◯ YES	◯ NO	
Electrical safety test			
Electrical safety tested according local codes	◯ YES	◯ NO	

RSP : Name	Technician : Date and signature	Customer : Date and signature

Notes:

Water info

Because of continuous examinations of systems for water treatment we would like to offer you a few information on some different systems.
The given statements are only related to Rational units.
If you already have made experiences with systems for water treatment, we would be very thankful if you could send us a short fax about your experiences.

1. Recommended systems for water treatment:

A)With pure scale problems in the steam generator we recommend hydrogen-(H+)-Ionic exchanger. These type of filters will extend the intervals of descaling to approx. 5 to 8-times of the normal descaling intervals. But even with this type of filters it is still necessary to descale the steam generator.
B) With a high chloride – content above 150mg/l of water, it is possible, that the interior cabinet starts to corrode. To remedy this problem it is necessary to install a reverse - osmosis – filter.
C) With chlorine-contents above 0,2 mg/l of water an active carbon filter should be installed, to avoid corrosive radicals when chlorine is heated up.
D)If the water is soiled with sand, iron particles or suspended matters a particle filter with 5-15 µm is recommended.

2. Limited recommended systems for water treatment.

A)Phosphate dosing systems
For verifying the function of this system, it is necessary to mix the water with a very high content of phosphate. Because of this the maximum allowed content of 5 mg phosphate per litre of water will be exceeded. This means the water has no drinking water quality any more. Therefore phosphate dosing systems can only be recommended for avoiding scale in the quenching chamber as it is not necessary to have drinking water quality for the quenching system.
B)Physical systems for water treatment:
On some sites this type of water treatment (is directly installed in the water supply of the unit) showed satisfactory results. On other sites there was no positive effect visible with this type of system. Because of these circumstances we can not make a final assessment of this system.

3. Not recommended systems for water treatment.

A) Sodium-Ionic exchanger:
With this filter system calcium is replaced by sodium. On chlorine contents of the water above 50mg/l, sodium reacts with chlorine to NaCl (=salt). This increase of salt in the water results in a delay in boiling of the water. This delay in boiling can cause ”spitting” steam generators.
B)Silicate-dosing systems:
This kind of systems are problematic, as the adding of non conductive silicates, will influence the water level measurement.influence the water level measurement.

Rational recommends Water treatment filters systems of BRITA company.

Notes:

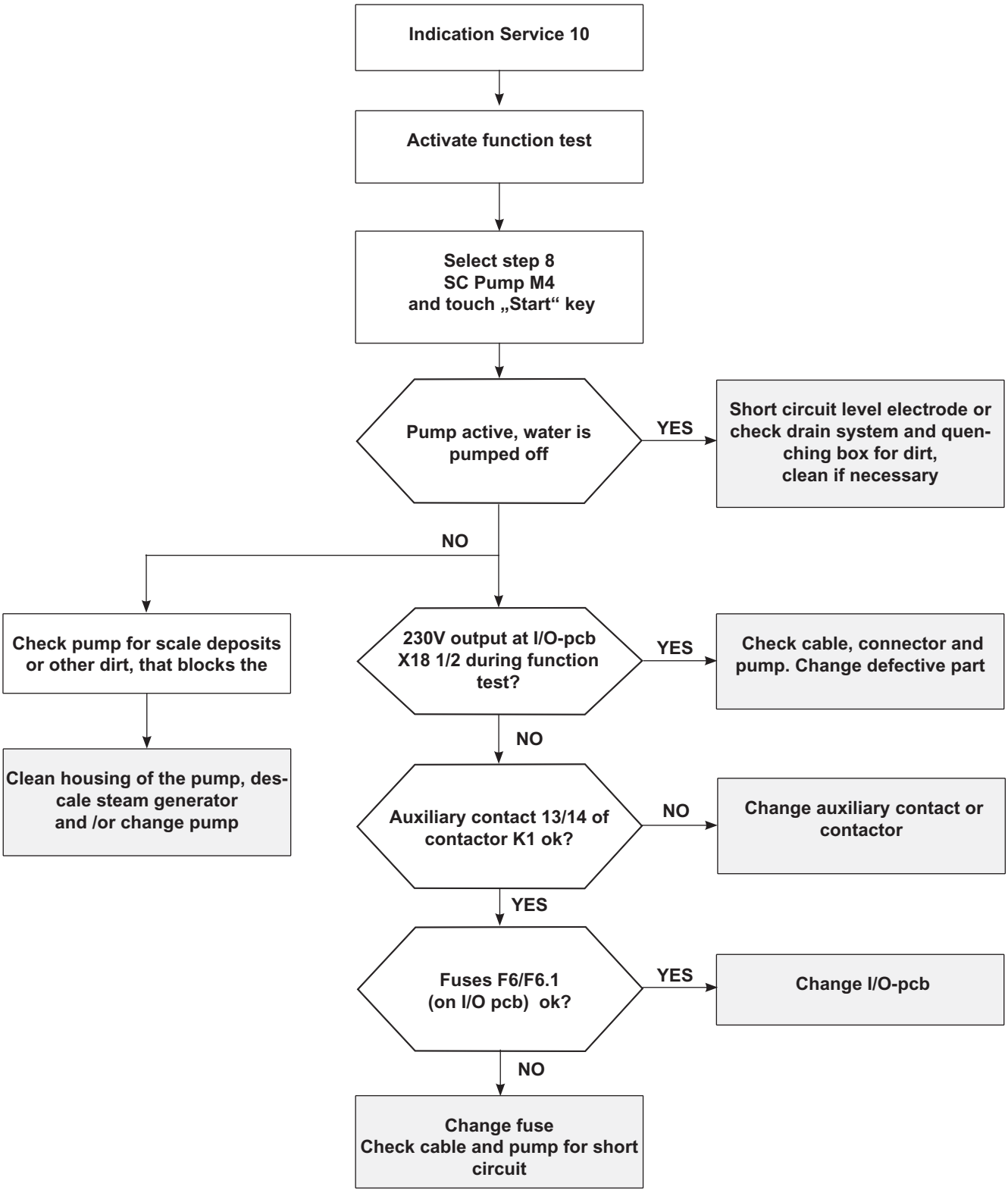
SCC Fault list - Troubleshooting

Service 10 121
Service 11 122
Service 25 123
Service 26 124
Service 27 124
Service 26 125
Service 27 125
No display - safety circuit 126
No or to low steam production 127
„RESET“ indication (Gas units) 128
Check polarity (Gas units) 128
Indication descaling /Service 12 129
Buzzer sounds 130
Service 100 131

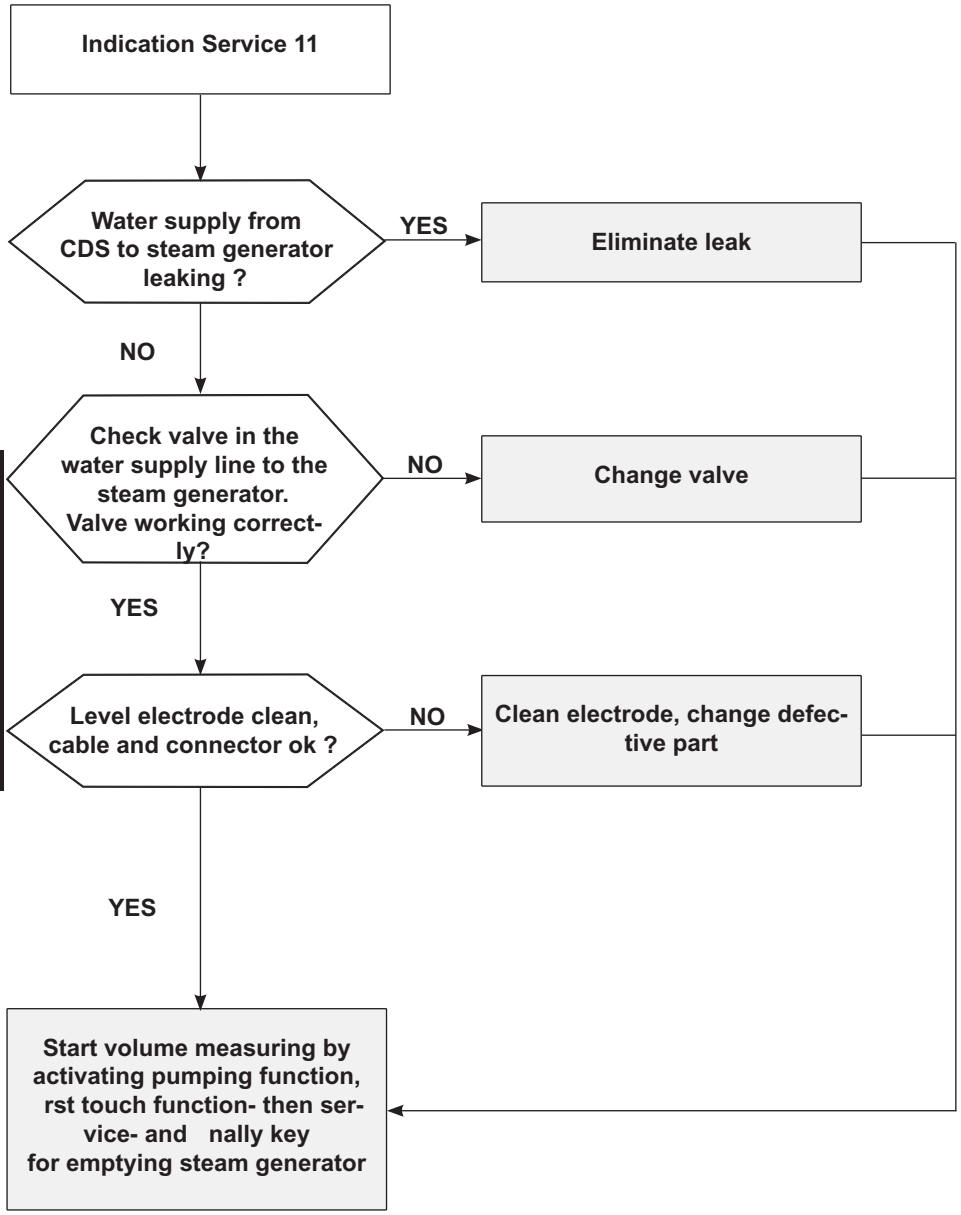
CM Fault list - Troubleshooting

CM - No function- safety circuit 132
No Steam 133
Buzzer sounds 134
Indication „E13“ (SC-Automatic) 135
Indication „rES“ (=reset) 136
CHnG POL (check polarity) 136

Level electrode of the steam generator did not recognise a reduction of the water level during last SC-Automatic

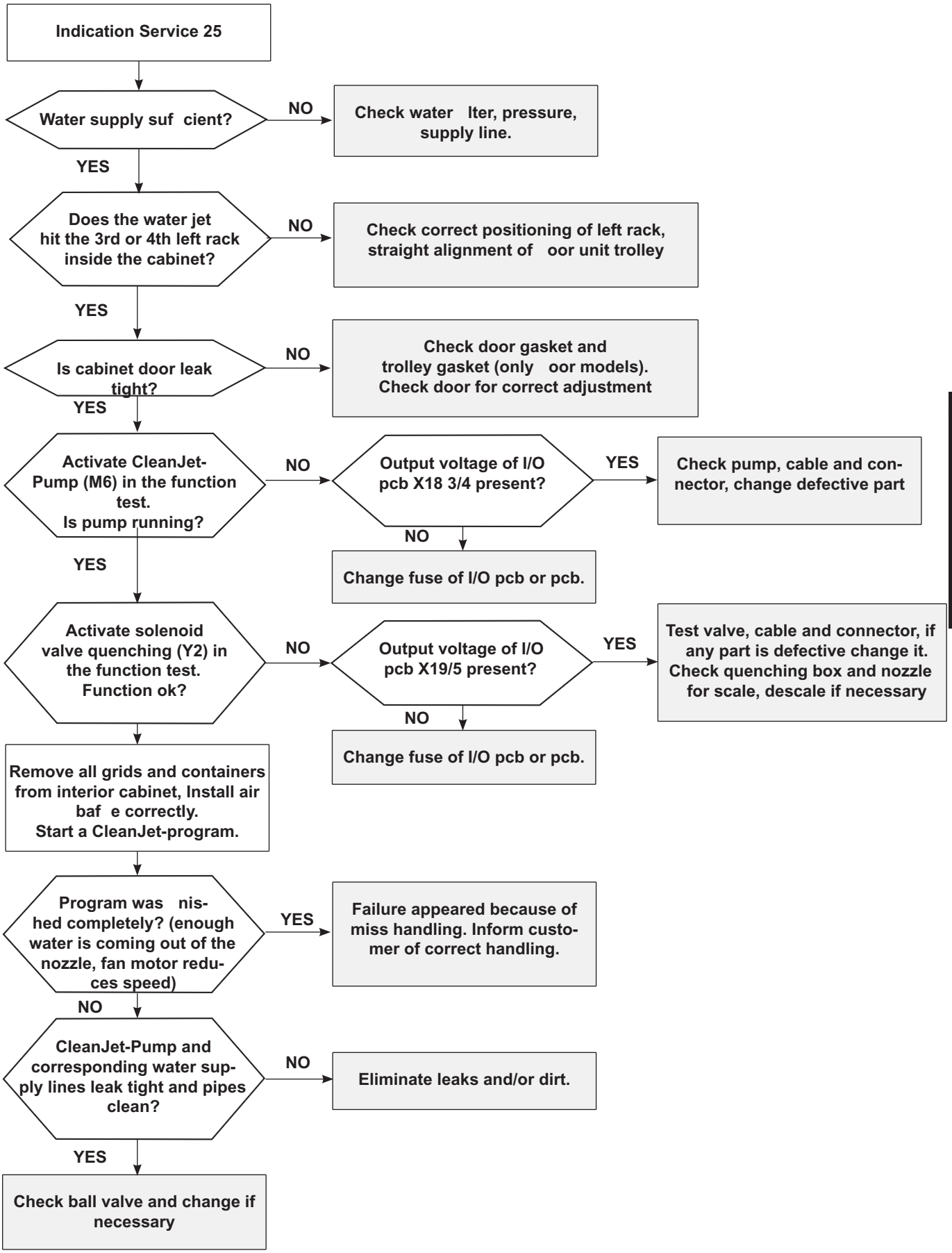

Indication Service 10
Activate function test
Select step 8
SC Pump M4
and touch „Start“ key
Pump active, water is pumped off
YES
Short circuit level electrode or check drain system and quenching box for dirt, clean if necessary
NO
Check pump for scale deposits or other dirt, that blocks the
Clean housing of the pump, descale steam generator and /or change pump
230V output at I/O-pcb X18 1/2 during function test?
YES
Check cable, connector and pump. Change defective part
NO
Auxiliary contact 13/14 of contactor K1 ok?
NO
Change auxiliary contact or contactor
YES
Fuses F6/F6.1 (on I/O pcb) ok?
YES
Change I/O-pcb
NO
Change fuse
Check cable and pump for short circuit

Actual measured lling volume above reference volume of steam generator


Indication Service 11
Water supply from CDS to steam generator leaking ?
YES
Eliminate leak
NO
Check valve in the water supply line to the steam generator. Valve working correct-ly?
NO
Change valve
YES
Level electrode clean, cable and connector ok ?
NO
Clean electrode, change defec-tive part
YES
Start volume measuring by activating pumping function, rst touch function- then ser-vice- and nally key for emptying steam generator

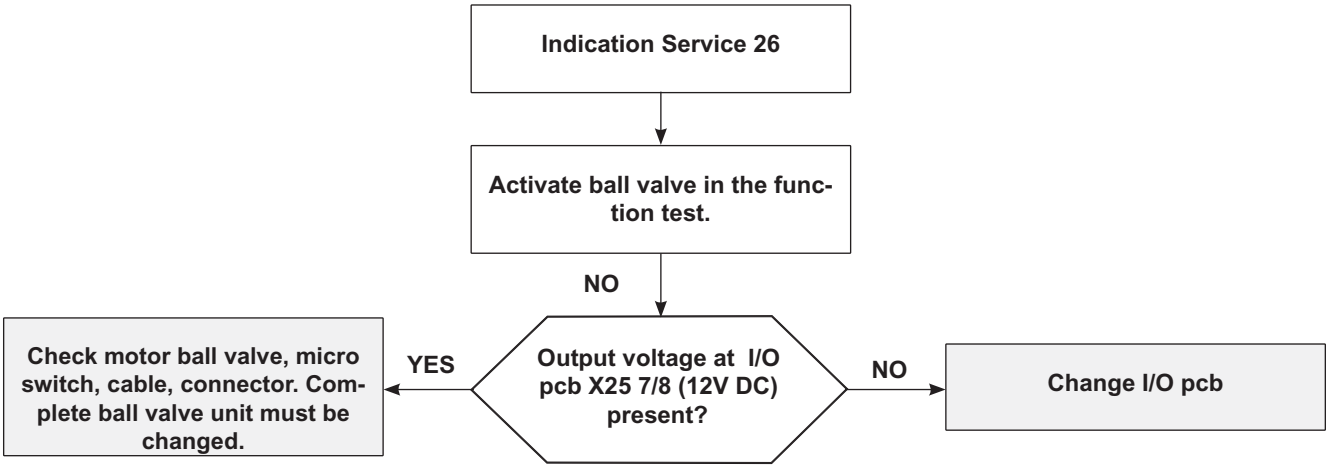
Service 25

CleanJet does not deliver enough water to the fan wheel of the motor.
Typical indication: The running time of the program will be exceeded.
Check correct position of left rack and / or oor unit trolley!


Indication Service 25
Water supply suf cient?
NO
Check water lter, pressure, supply line.
YES
Does the water jet hit the 3rd or 4th left rack inside the cabinet?
NO
Check correct positioning of left rack, straight alignment of oor unit trolley
YES
Is cabinet door leak tight?
NO
Check door gasket and trolley gasket (only oor models). Check door for correct adjustment
YES
Activate CleanJet-Pump (M6) in the function test. Is pump running?
NO
Output voltage of I/O pcb X18 3/4 present?
YES
Check pump, cable and connector, change defective part
NO
Change fuse of I/O pcb or pcb.
YES
Activate solenoid valve quenching (Y2) in the function test. Function ok?
NO
Output voltage of I/O pcb X19/5 present?
YES
Test valve, cable and connector, if any part is defective change it. Check quenching box and nozzle for scale, descale if necessary
NO
Change fuse of I/O pcb or pcb.
Remove all grids and containers from interior cabinet, Install air baf e correctly. Start a CleanJet-program.
Program was nished completely? (enough water is coming out of the nozzle, fan motor reduces speed)
YES
Failure appeared because of miss handling. Inform customer of correct handling.
NO
CleanJet-Pump and corresponding water supply lines leak tight and pipes clean?
NO
Eliminate leaks and/or dirt.
YES
Check ball valve and change if necessary

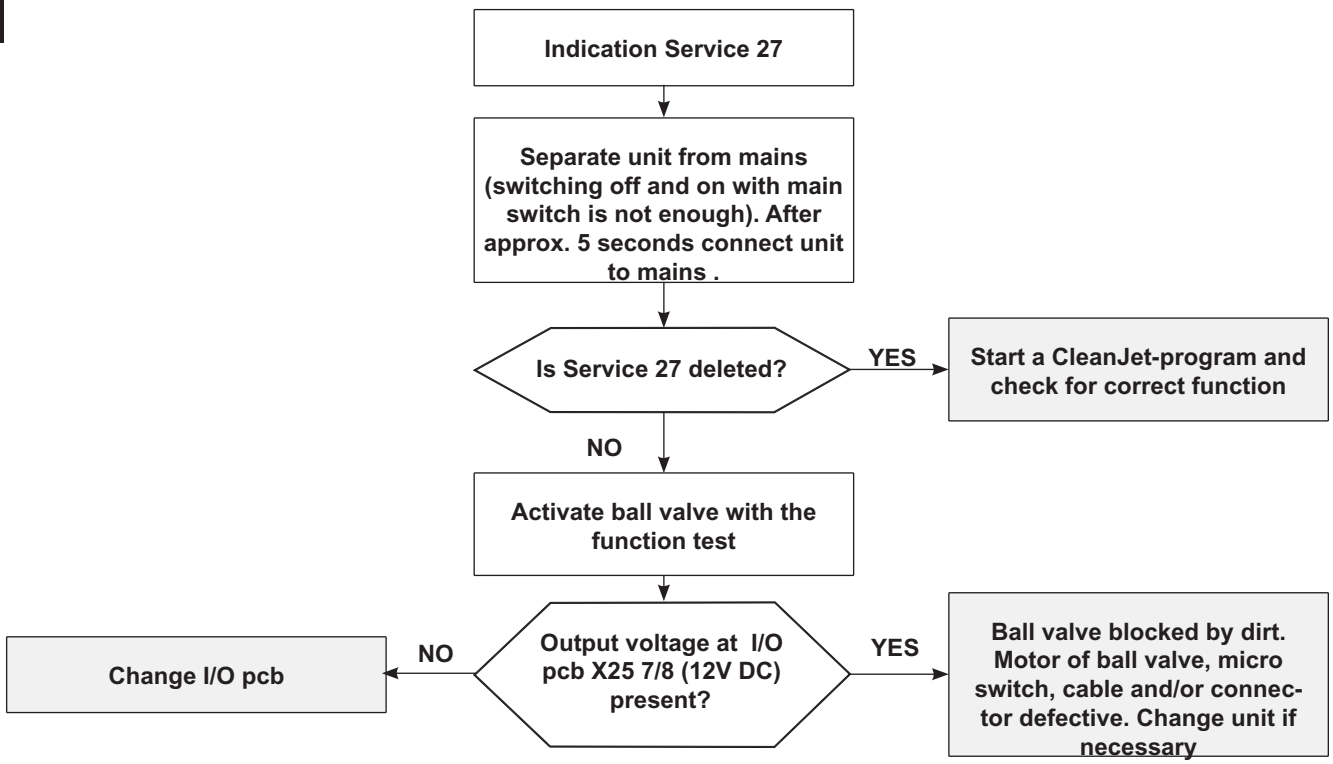
Service 26

Micro switch ball valve in permanent closed position.
Unit out of order


Indication Service 26
Activate ball valve in the function test.
NO
Output voltage at I/O pcb X25 7/8 (12V DC) present?
YES
Check motor ball valve, micro switch, cable, connector. Complete ball valve unit must be changed.
NO
Change I/O pcb

Service 27

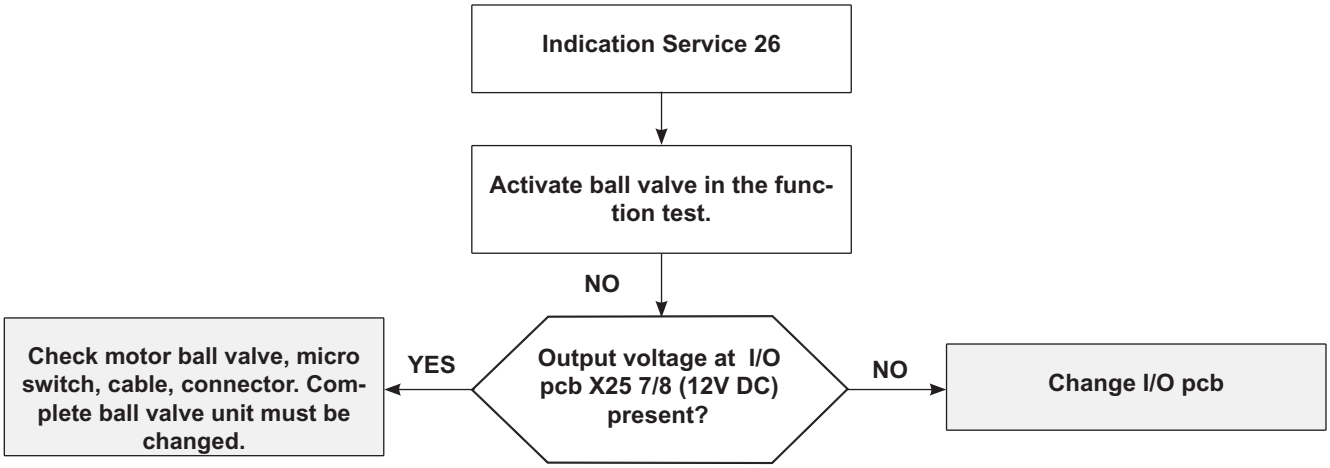
Micro switch ball valve in permanent open position.
CleanJet can not be used


Indication Service 27
Separate unit from mains (switching off and on with main switch is not enough). After approx. 5 seconds connect unit to mains .
Is Service 27 deleted?
YES
Start a CleanJet-program and check for correct function
NO
Activate ball valve with the function test
Output voltage at I/O pcb X25 7/8 (12V DC) present?
NO
Change I/O pcb
YES
Ball valve blocked by dirt. Motor of ball valve, micro switch, cable and/or connector defective. Change unit if necessary

Should Service 27 appear more often and I/O-pcb with revision status 402 respec. 403 is installed, then change

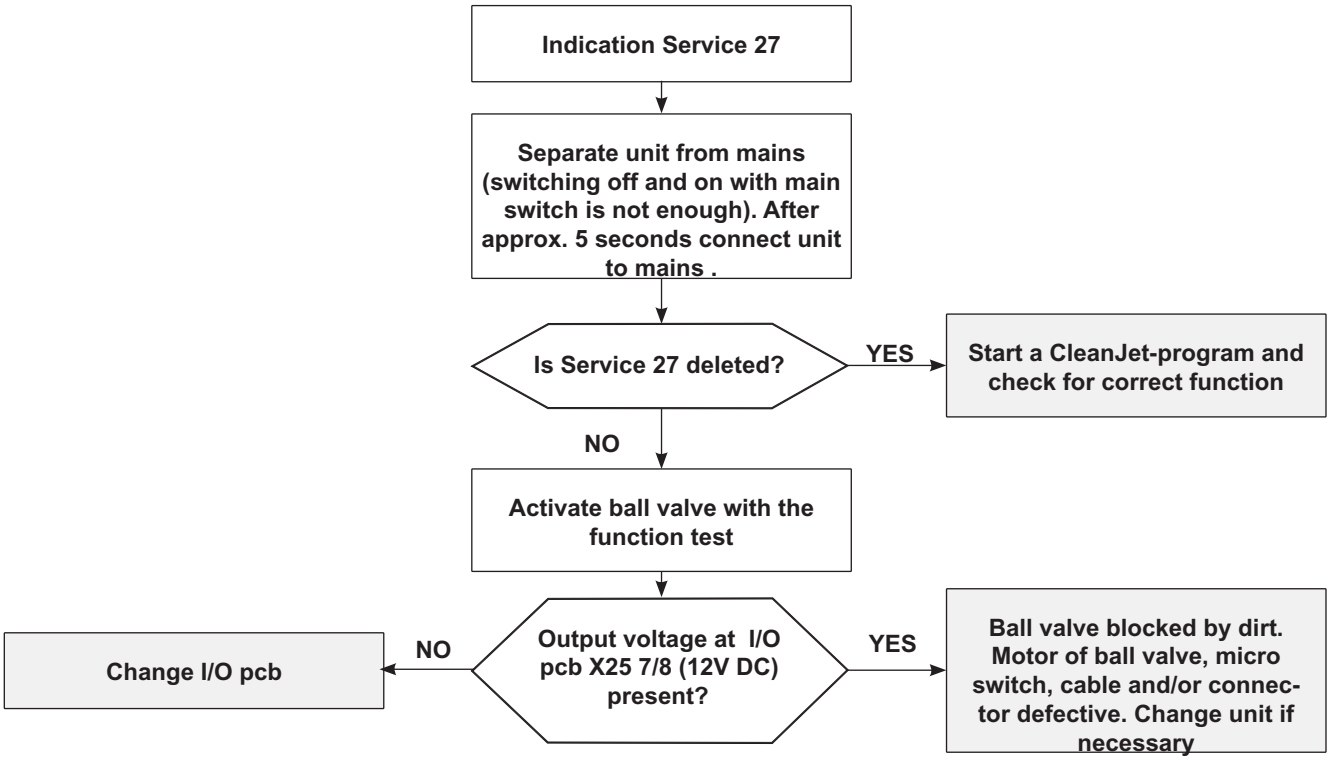
Service 26

Micro switch ball valve in permanent closed position.
Unit out of order


Indication Service 26
Activate ball valve in the function test.
NO
Output voltage at I/O pcb X25 7/8 (12V DC) present?
YES
Check motor ball valve, micro switch, cable, connector. Complete ball valve unit must be changed.
NO
Change I/O pcb

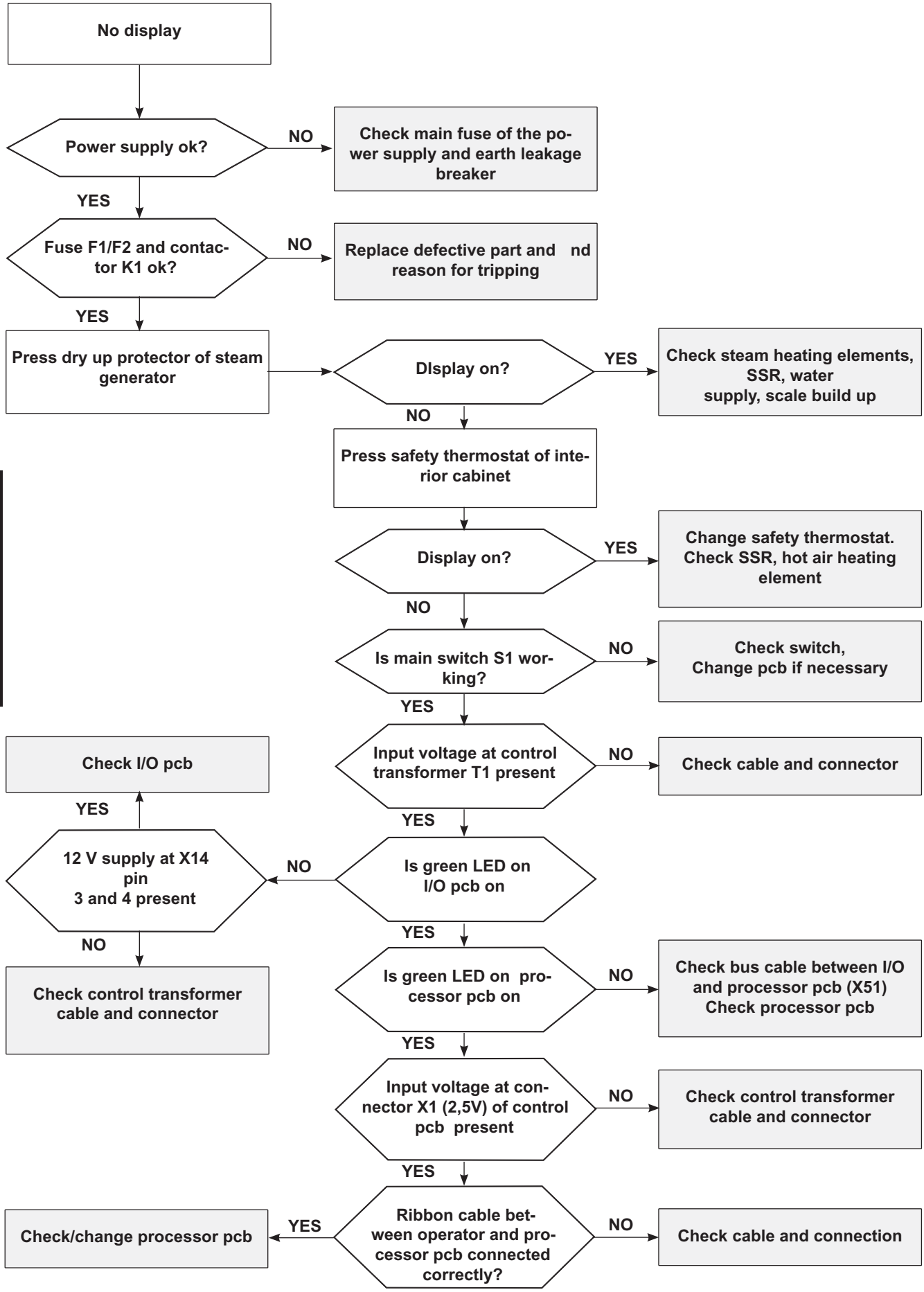
Service 27

Micro switch ball valve in permanent open position.
CleanJet can not be used


Indication Service 27
Separate unit from mains (switching off and on with main switch is not enough). After approx. 5 seconds connect unit to mains .
Is Service 27 deleted?
YES
Start a CleanJet-program and check for correct function
NO
Activate ball valve with the function test
Output voltage at I/O pcb X25 7/8 (12V DC) present?
NO
Change I/O pcb
YES
Ball valve blocked by dirt. Motor of ball valve, micro switch, cable and/or connector defective. Change unit if necessary

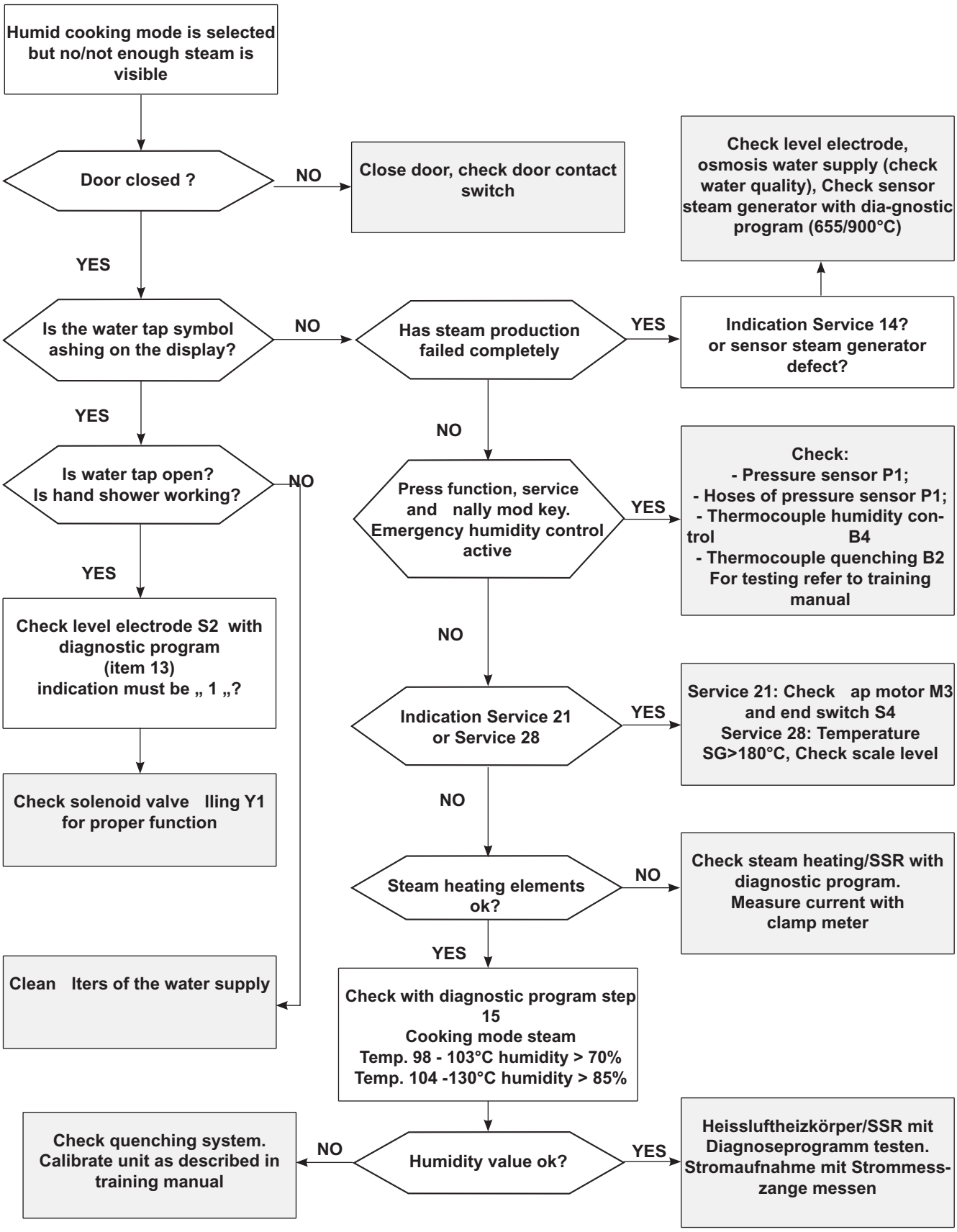
Should Service 27 appear more often and I/O-pcb with revision status 402 respec. 403 is installed, then change

No display - safety circuit



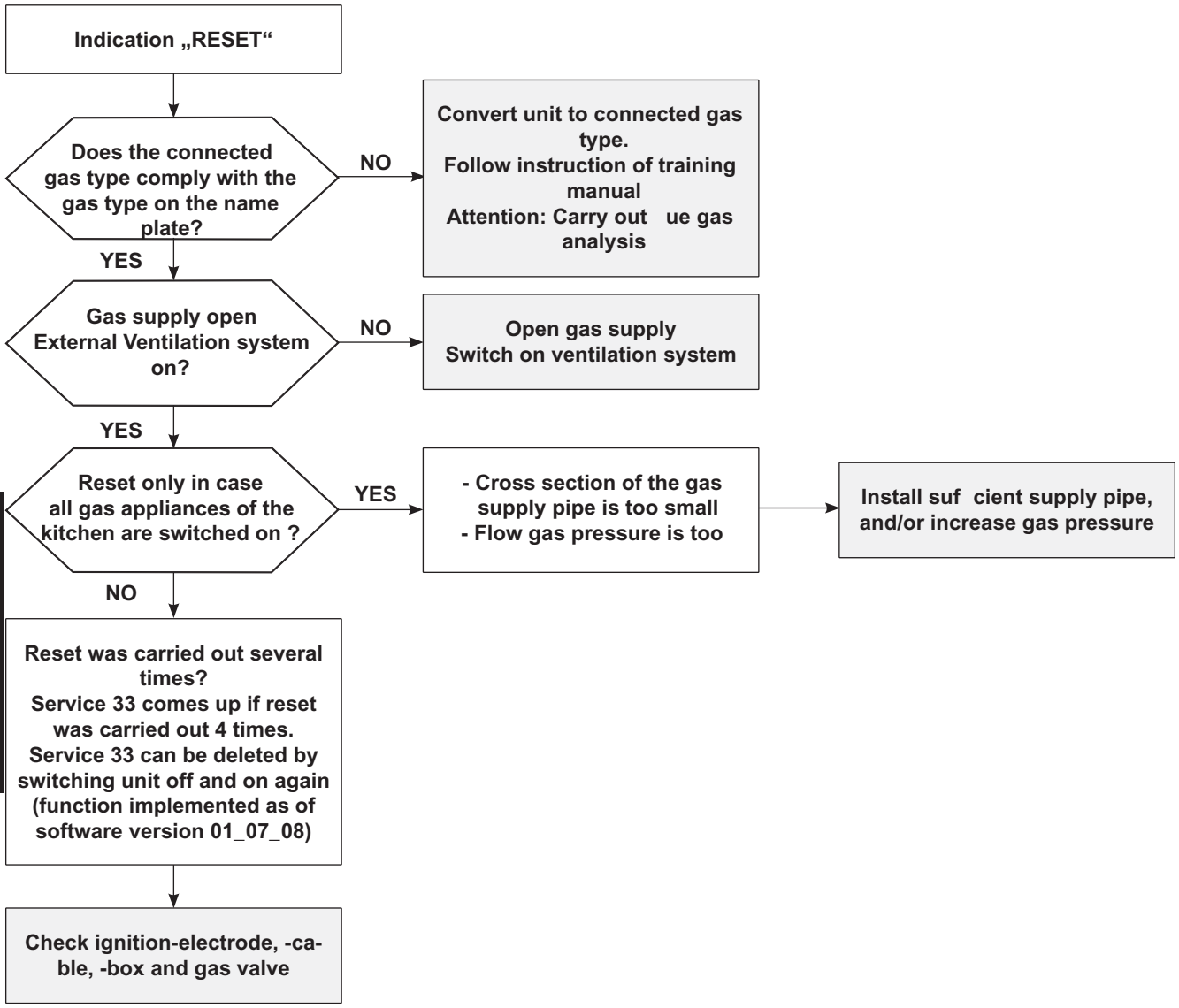
No or to low steam production

Steam above 110°C is not visible, it does not condensate on the cabinet door!


Humid cooking mode is selected but no/not enough steam is visible
Door closed ?
NO
Close door, check door contact switch
YES
Is the water tap symbol ashing on the display?
NO
Has steam production failed completely
YES
Indication Service 14? or sensor steam generator defect?
Check level electrode, osmosis water supply (check water quality), Check sensor steam generator with dia-gnostic program (655/900°C)
YES
NO
Is water tap open? Is hand shower working?
NO
YES
Press function, service and nally mod key. Emergency humidity control active
YES
Check:
- Pressure sensor P1;
- Hoses of pressure sensor P1;
- Thermocouple humidity control B4
- Thermocouple quenching B2
For testing refer to training manual
YES
NO
Check level electrode S2 with diagnostic program (item 13) indication must be „ 1 „?
Indication Service 21 or Service 28
YES
Service 21: Check ap motor M3 and end switch S4
Service 28: Temperature SG>180°C, Check scale level
Check solenoid valve lling Y1 for proper function
NO
Steam heating elements ok?
NO
Check steam heating/SSR with diagnostic program. Measure current with clamp meter
YES
Clean lters of the water supply
Check with diagnostic program step 15
Cooking mode steam
Temp. 98 - 103°C humidity > 70%
Temp. 104 -130°C humidity > 85%
Check quenching system. Calibrate unit as described in training manual
NO
Humidity value ok?
YES
Heissluftheizkörper/SSR mit Diagnoseprogramm testen. Stromaufnahme mit Strommess-zange messen

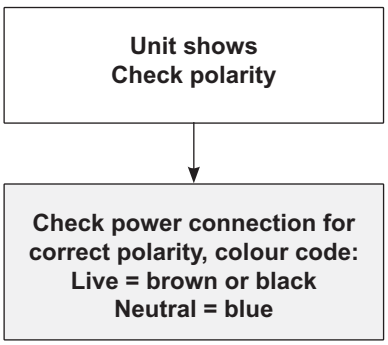
„RESET“ indication (Gas units)

Reason:
Flame monitoring does not work after ignition


Indication „RESET“
Does the connected gas type comply with the gas type on the name plate?
NO
Convert unit to connected gas type.
Follow instruction of training manual
Attention: Carry out ue gas analysis
YES
Gas supply open External Ventilation system on?
NO
Open gas supply
Switch on ventilation system
YES
Reset only in case all gas appliances of the kitchen are switched on ?
YES
- Cross section of the gas supply pipe is too small
- Flow gas pressure is too
Install suf cient supply pipe, and/or increase gas pressure
NO
Reset was carried out several times?
Service 33 comes up if reset was carried out 4 times.
Service 33 can be deleted by switching unit off and on again (function implemented as of software version 01_07_08)
Check ignition-electrode, -cable, -box and gas valve

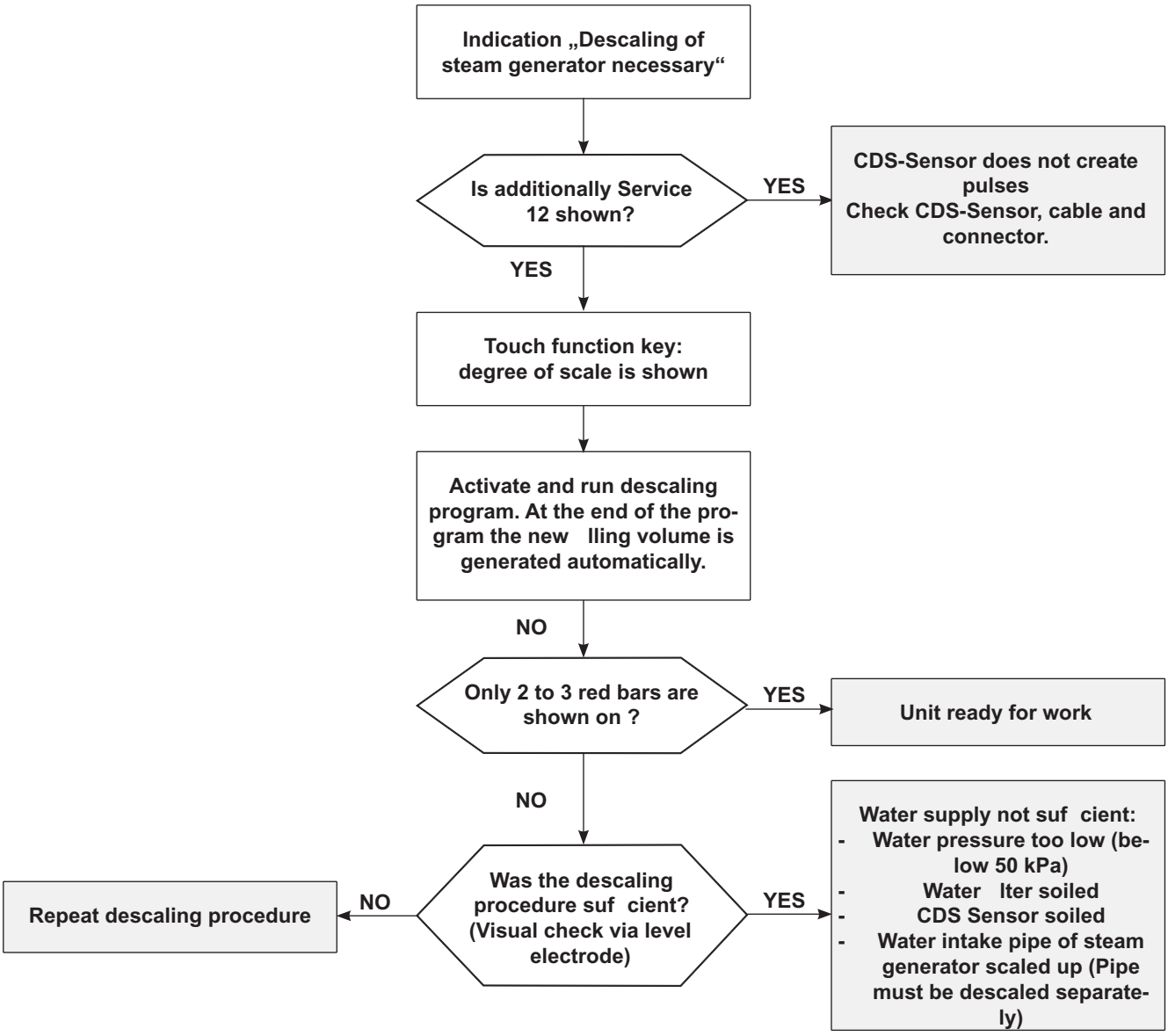
Check polarity (Gas units)

For ame monitoring mains must be connected with correct polarity



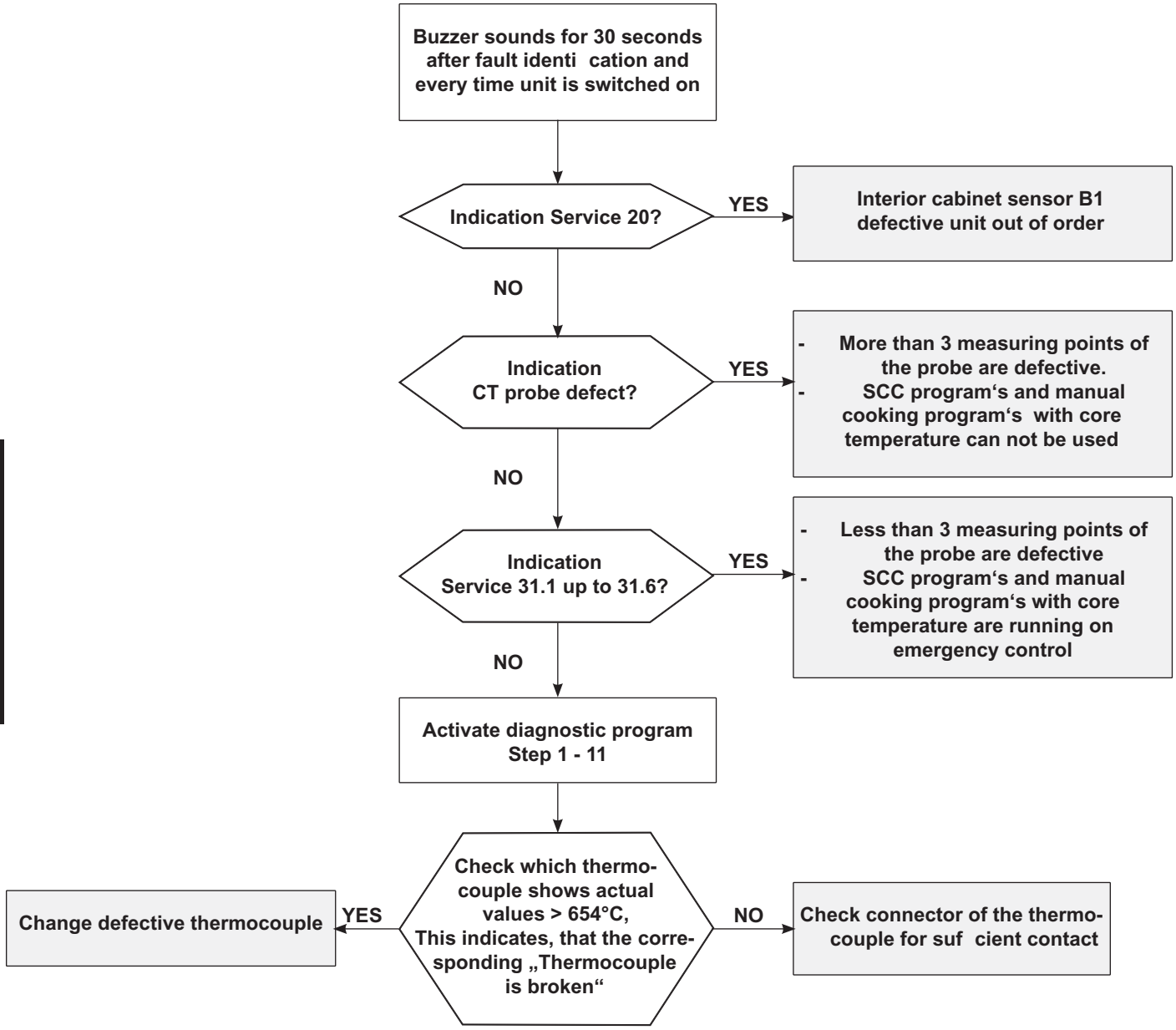
Indication descaling /Service 12

Steam generator scaled up CDS display shows 9 red bars


Indication „Descaling of steam generator necessary“
Is additionally Service 12 shown?
YES
CDS-Sensor does not create pulses
Check CDS-Sensor, cable and connector.
YES
Touch function key: degree of scale is shown
Activate and run descaling program. At the end of the pro-gram the new lling volume is generated automatically.
NO
Only 2 to 3 red bars are shown on ?
YES
Unit ready for work
NO
Was the descaling procedure suf cient? (Visual check via level electrode)
NO
Repeat descaling procedure
YES
Water supply not suf cient:
- Water pressure too low (be-low 50 kPa)
- Water lter soiled
- CDS Sensor soiled
- Water intake pipe of steam generator scaled up (Pipe must be descaled separate-ly)

Buzzer sounds

Reason: Any thermocouple is defective
Different buzzer intervals depending which thermocouple is defective

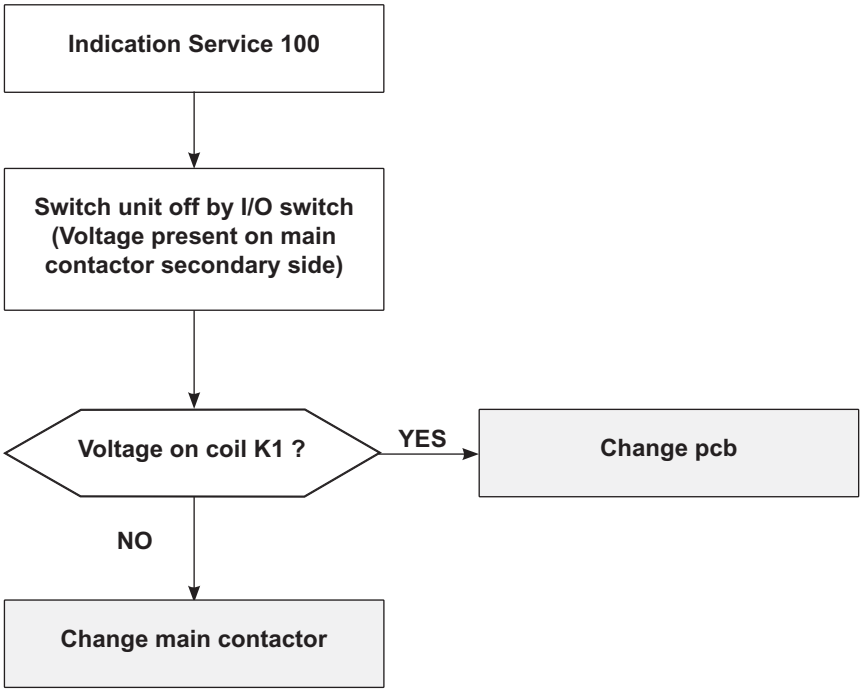

Buzzer sounds for 30 seconds after fault identi cation and every time unit is switched on
Indication Service 20?
YES
Interior cabinet sensor B1 defective unit out of order
NO
Indication CT probe defect?
YES
- More than 3 measuring points of the probe are defective.
- SCC program‘s and manual cooking program‘s with core temperature can not be used
NO
Indication Service 31.1 up to 31.6?
YES
- Less than 3 measuring points of the probe are defective
- SCC program‘s and manual cooking program‘s with core temperature are running on emergency control
NO
Activate diagnostic program Step 1 - 11
Check which thermo-couple shows actual values > 654°C, This indicates, that the corre-sponding „Thermocouple is broken“
YES
Change defective thermocouple
NO
Check connector of the thermo-couple for suf cient contact

Buzzer frequency by failure of thermocouple (counting in 5 sec.)

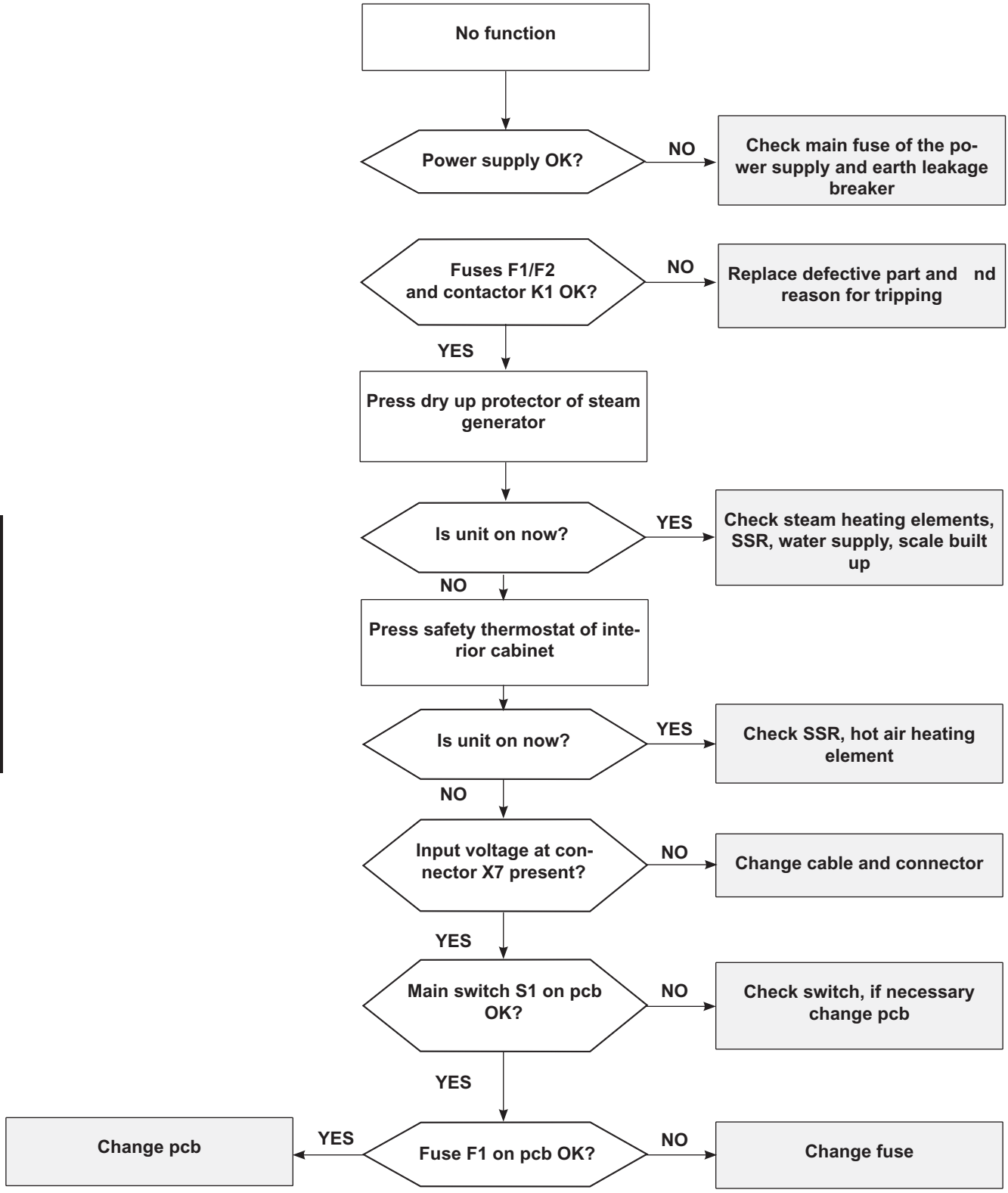
B1	12	in 5 sec.
B2	6	in 5 sec.
B4	5	in 5 sec.
B5	8	in 5 sec.
Core temperature sensor	20	in 5 sec.

Service 100

Reason: **Main contactor isn´t fall off by last switch off pcb**

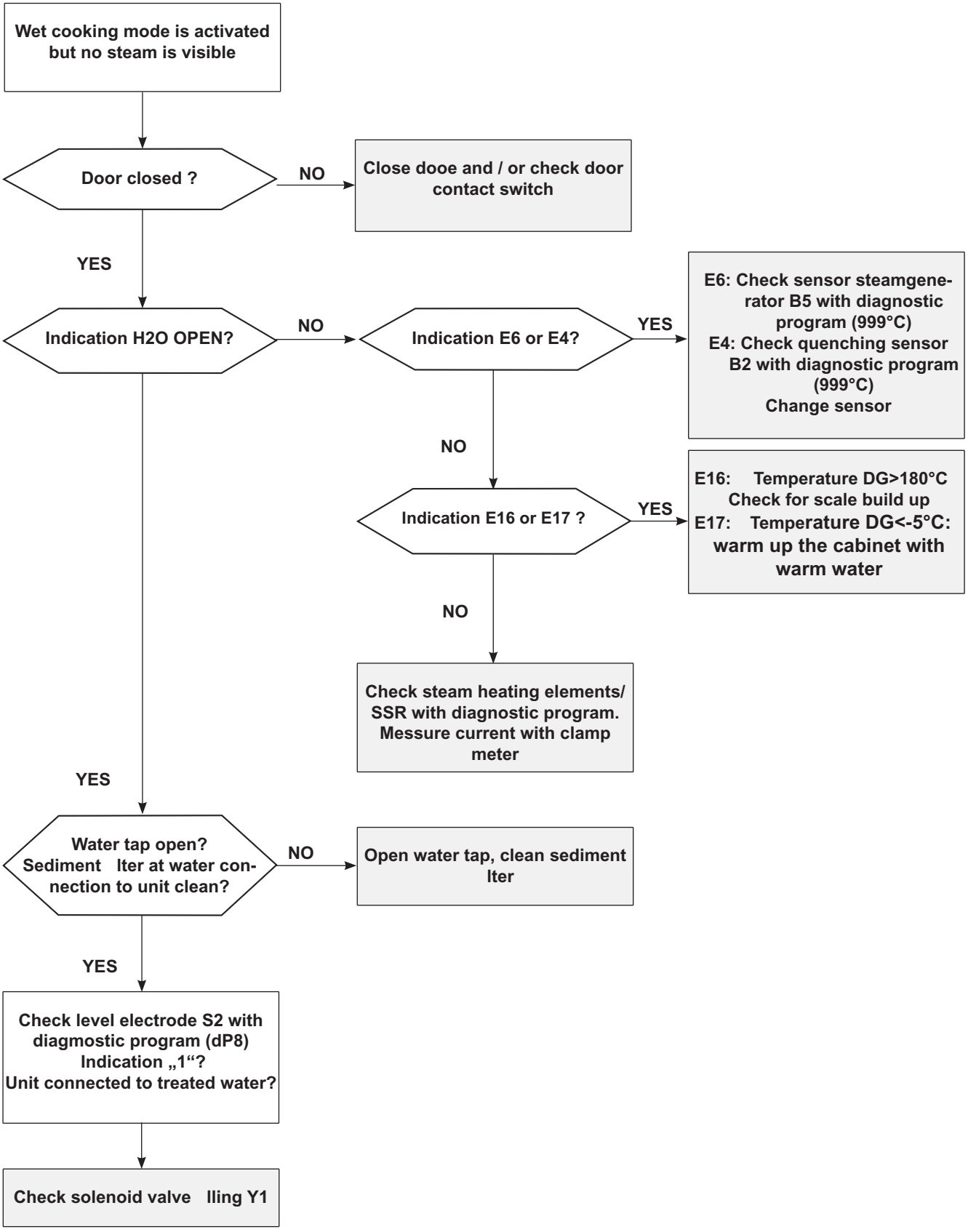

Indication Service 100
Switch unit off by I/O switch (Voltage present on main contactor secondary side)
Voltage on coil K1 ?
YES
Change pcb
NO
Change main contactor

CM - No function- safety circuit



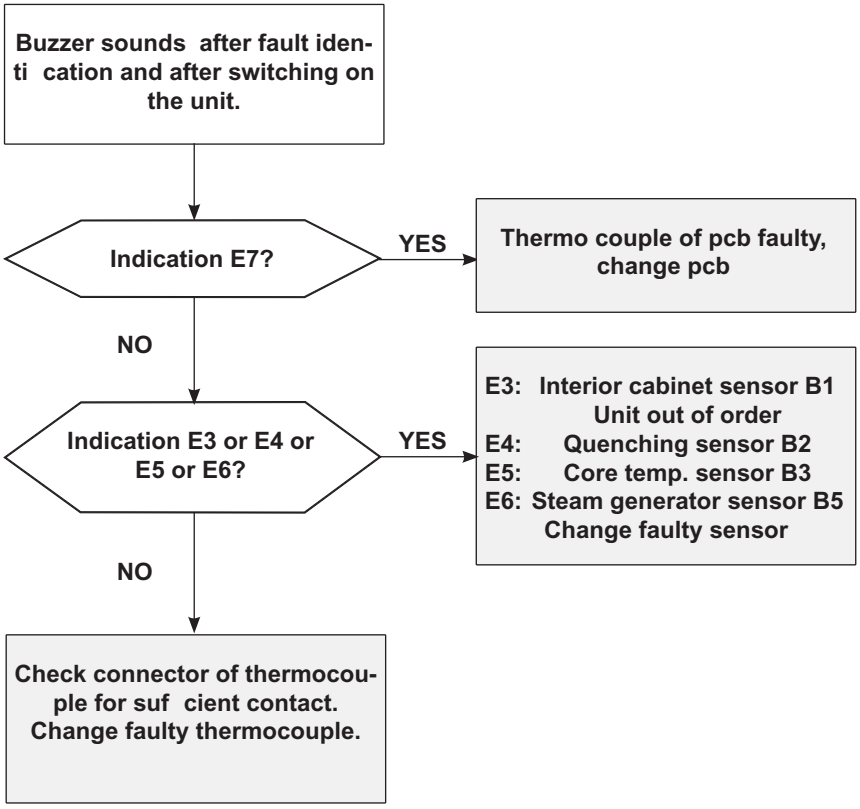
No Steam

Attention: Steam above 110°C is not visible, it does not condensate on the cabinet door!


Wet cooking mode is activated but no steam is visible
Door closed ?
NO
Close dooe and / or check door contact switch
YES
Indication H2O OPEN?
NO
Indication E6 or E4?
YES
E6: Check sensor steamgenerator B5 with diagnostic program (999°C)
E4: Check quenching sensor B2 with diagnostic program (999°C)
Change sensor
NO
Indication E16 or E17 ?
YES
E16: Temperature DG>180°C
Check for scale build up
E17: Temperature DG<-5°C:
warm up the cabinet with warm water
NO
Check steam heating elements/ SSR with diagnostic program. Messure current with clamp meter
YES
Water tap open? Sediment Iter at water connection to unit clean?
NO
Open water tap, clean sediment Iter
YES
Check level electrode S2 with diagmostic program (dP8)
Indication „1“?
Unit connected to treated water?
Check solenoid valve lling Y1

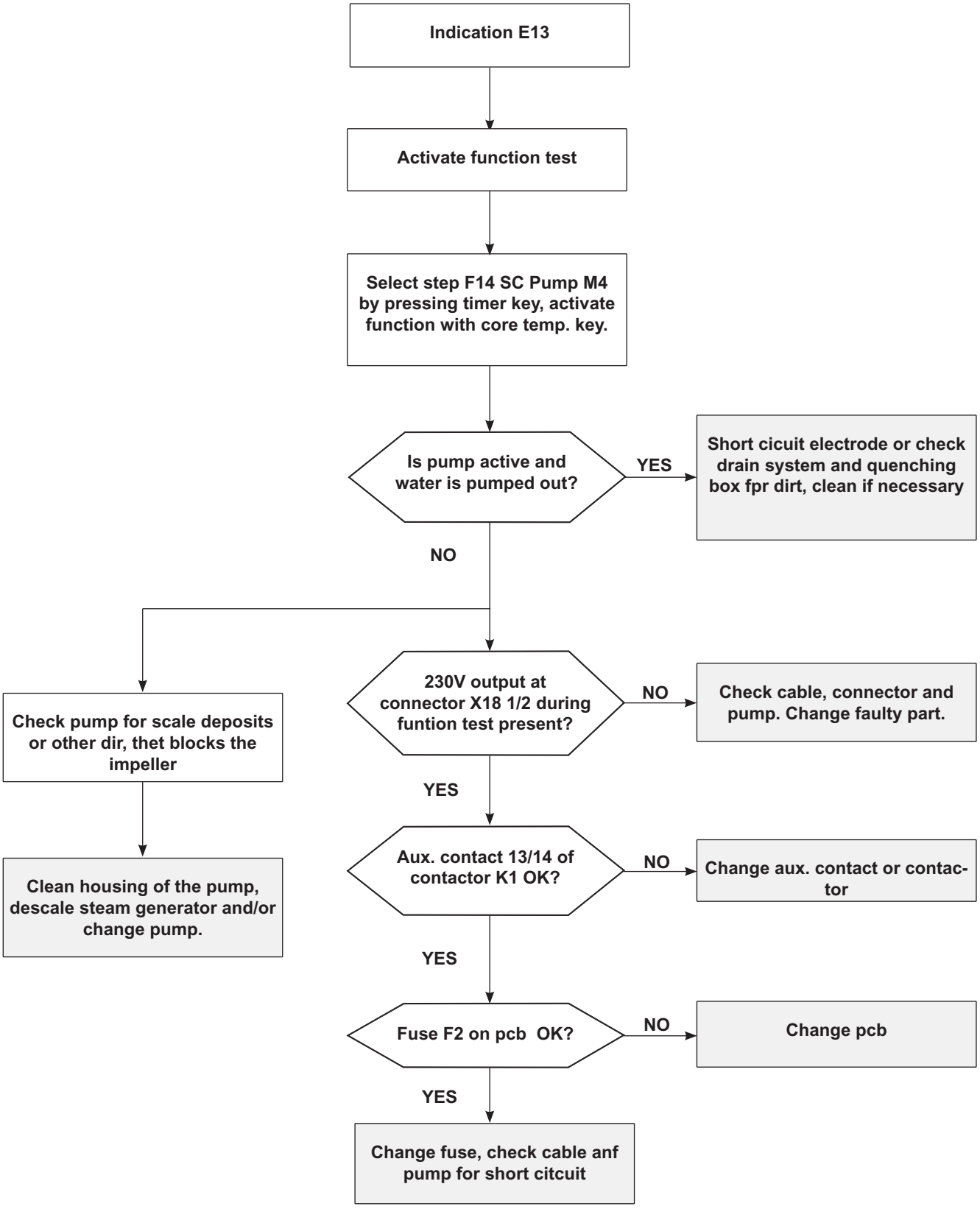
Buzzer sounds

Reason fo fault: Any thermocouple is faulty


Buzzer sounds after fault identi cation and after switching on the unit.
Indication E7?
YES
Thermo couple of pcb faulty, change pcb
NO
Indication E3 or E4 or E5 or E6?
YES
E3: Interior cabinet sensor B1
Unit out of order
E4: Quenching sensor B2
E5: Core temp. sensor B3
E6: Steam generator sensor B5
Change faulty sensor
NO
Check connector of thermocouple for suf cient contact.
Change faulty thermocouple.

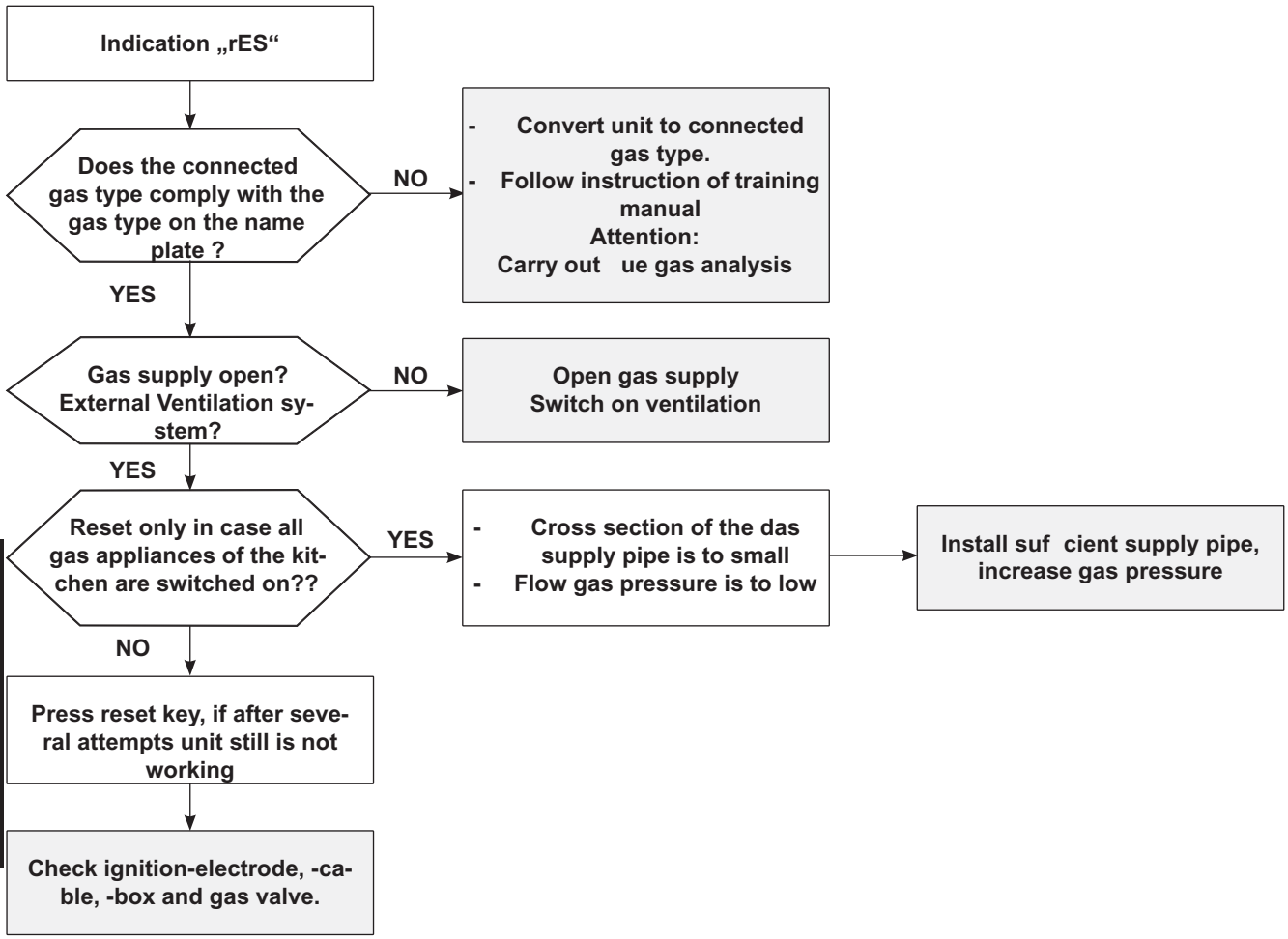
Indication „E13“ (SC-Automatic)

Level electrode of the steam generator did not recognise a reduction of the water level during last SC-automatc


Indication E13
Activate function test
Select step F14 SC Pump M4 by pressing timer key, activate function with core temp. key.
Is pump active and water is pumped out?
YES
Short cicuit electrode or check drain system and quenching box fpr dirt, clean if necessary
NO
Check pump for scale deposits or other dir, thet blocks the impeller
230V output at connector X18 1/2 during funtion test present?
NO
Check cable, connector and pump. Change faulty part.
YES
Clean housing of the pump, descale steam generator and/or change pump.
Aux. contact 13/14 of contactor K1 OK?
NO
Change aux. contact or contac-tor
YES
Fuse F2 on pcb OK?
NO
Change pcb
YES
Change fuse, check cable anf pump for short citcuit

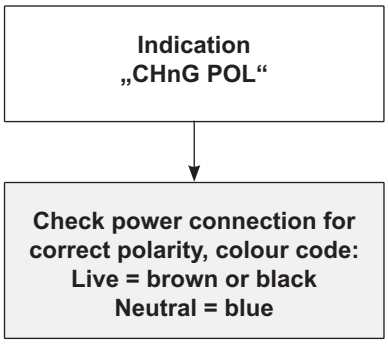
Indication „rES“ (=reset)

Reason:
No ame sensing after ignition


Indication „rES“
Does the connected gas type comply with the gas type on the name plate ?
NO
- Convert unit to connected gas type.
- Follow instruction of training manual
Attention:
Carry out ue gas analysis
YES
Gas supply open? External Ventilation system?
NO
Open gas supply
Switch on ventilation
YES
Reset only in case all gas appliances of the kitchen are switched on??
YES
- Cross section of the das supply pipe is to small
- Flow gas pressure is to low
Install suf cient supply pipe, increase gas pressure
NO
Press reset key, if after several attempts unit still is not working
Check ignition-electrode, -cable, -box and gas valve.

CHnG POL (check polarity)

For ame monitoringL1 mains must be connected with correct polarity

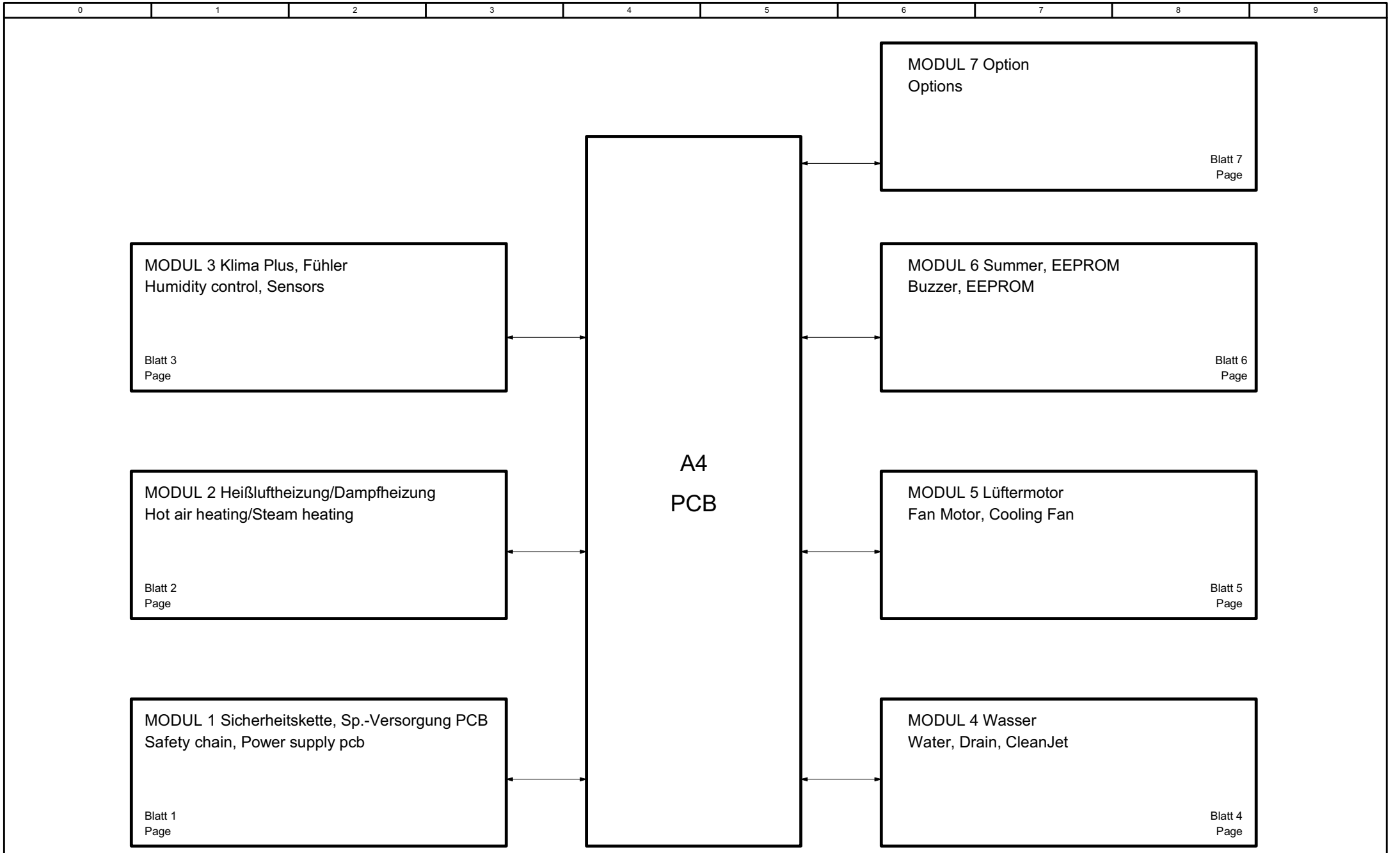


Notes:

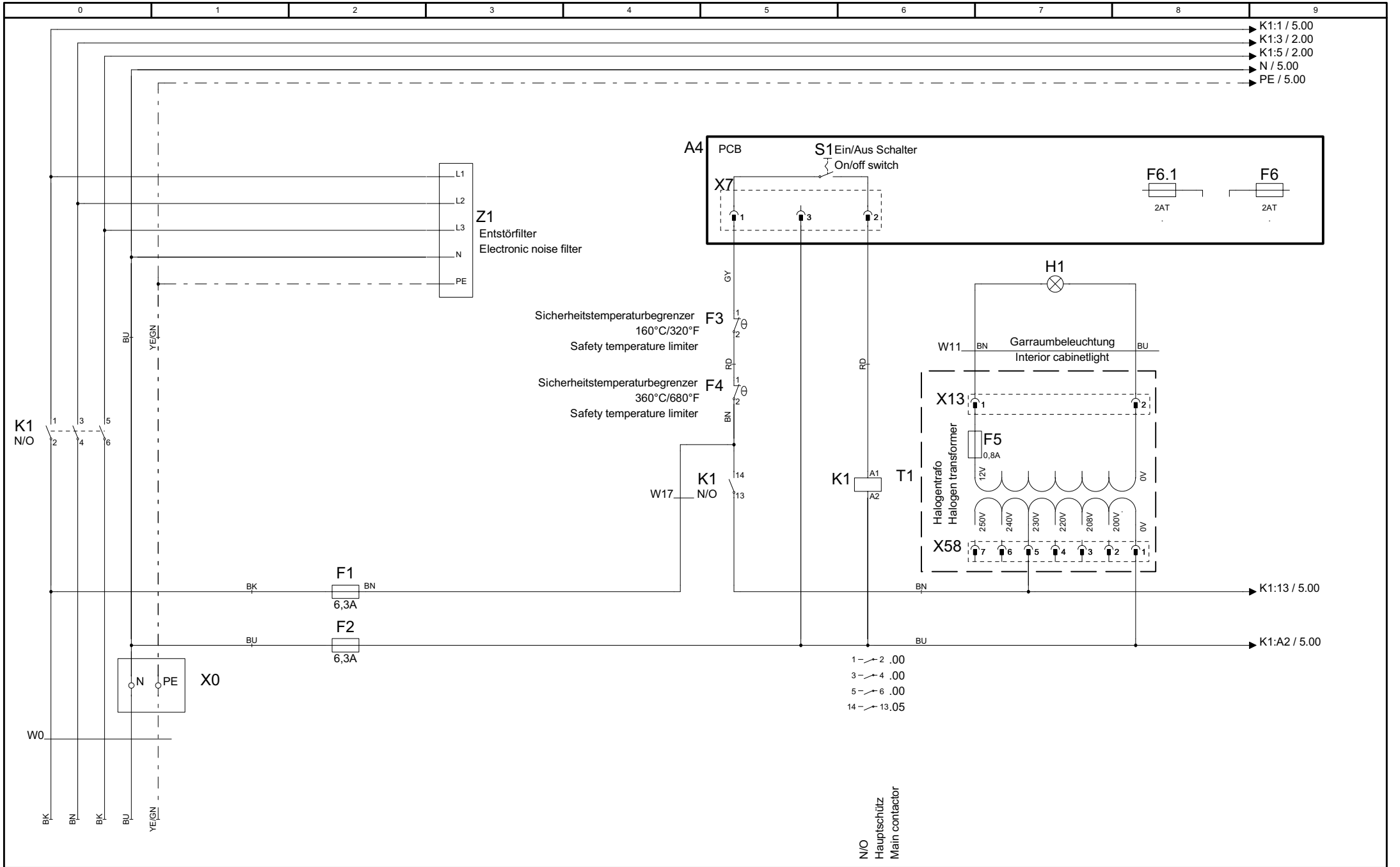
Deckblatt Elektrische Dokumentation, Cover sheet for electrical Documentation

Die Elektrische Dokumentation besteht aus: 1. diesem Deckblatt, 2. dem Schaltplan und 3. der Legende der elektrischen Bauteile
The electric documentation contains: 1. this cover sheet, 2. the wiring diagram and 3. the bill of electrical material (BOM)

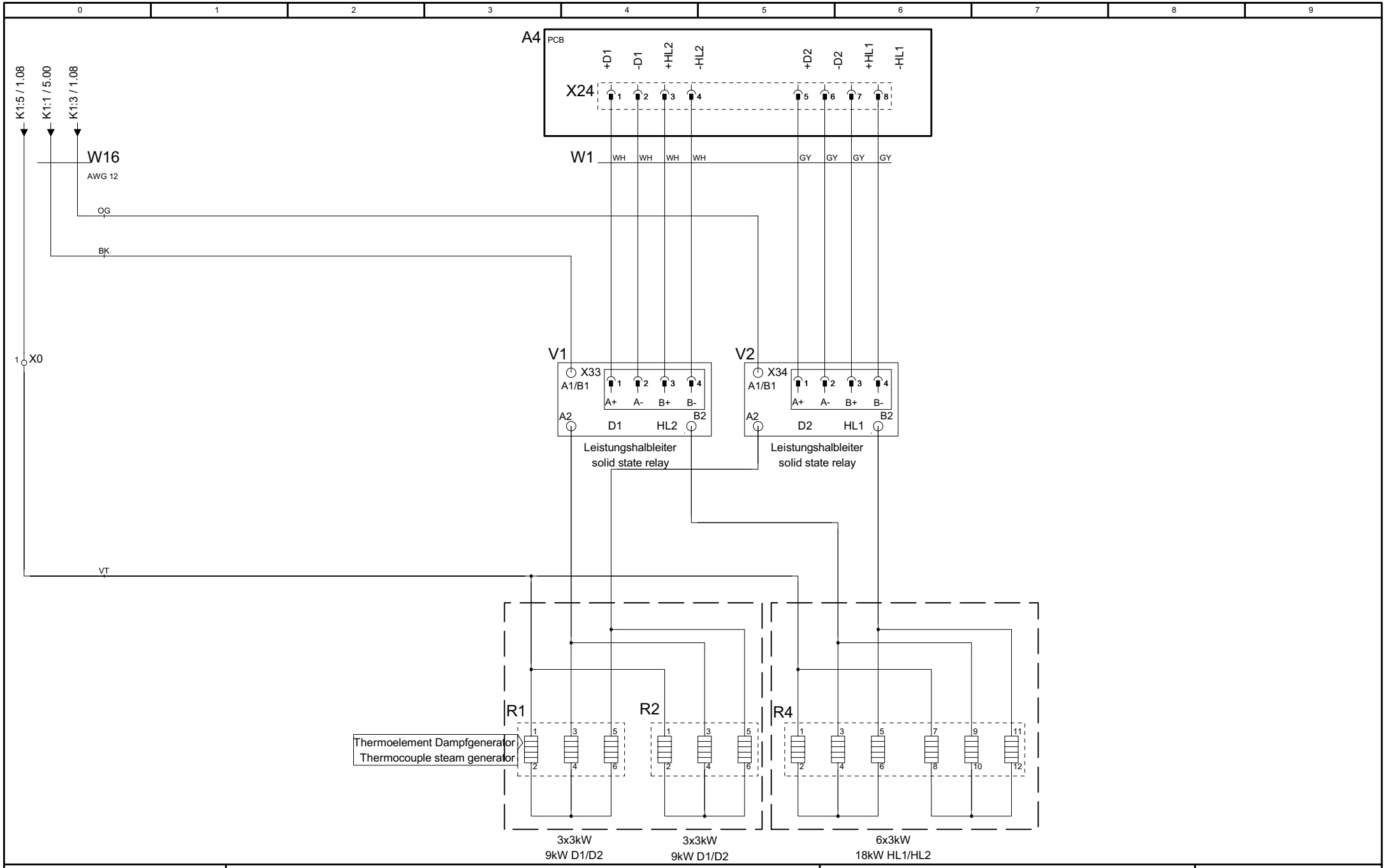
Deckblatt-Nr. **Front Page No.**	75-20017	**Version**	0
Typ / Type	CM101E		
Schaltplan **Wiring diagram** **Spannung (SPL)** **Voltage**	76-00011 3NAC400V 50-60Hz	**Version**	0
Legende **Legend electr. components**	78-00022	**Version**	0
Geräteserialnr. **Serial number**	E11ME0401	**Version**	0401
Erstellt am **Created at**	04.05.2004 19:39:45	**Ersteller** **Creator**	SCHD
Gültig ab **Valid from**	04.05.2004		



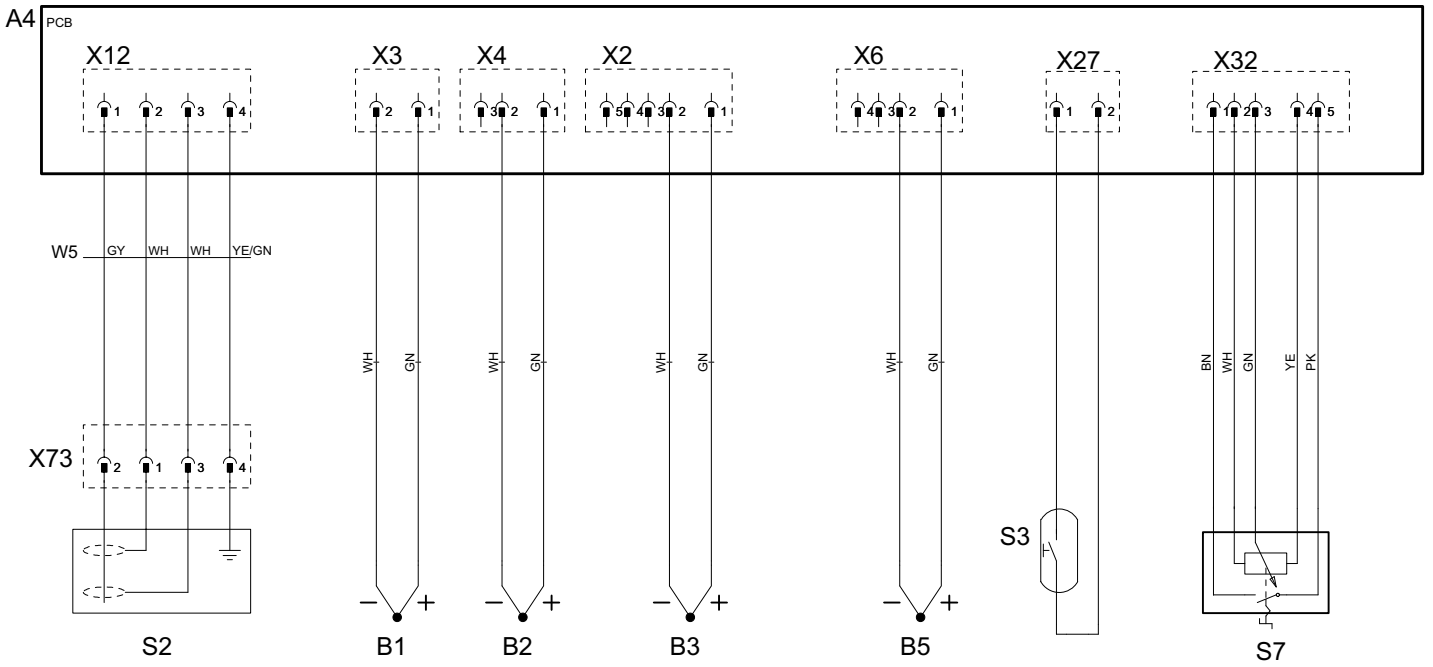
76-00011	Überblick	CM101E	Erstellt von / Created by: PA
Version 0	-139-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004
			Blatt / Page: 8



76-00011	MODUL 1 Sicherheitskette, SP.-Versorgung PCB Safety chain, Power supply pcb	CM101E	Erstellt von / Created by: PA
Version: 0	-140-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 1



76-00011	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating	CM101E	Erstellt von / Created by: PA
Version 0	-141-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 2



Niveauelektrode
Water level sensor

Thermoelement Garraum
Thermocouple cooking cabinet

Thermoelement Ablöschung
Thermocouple quenching system

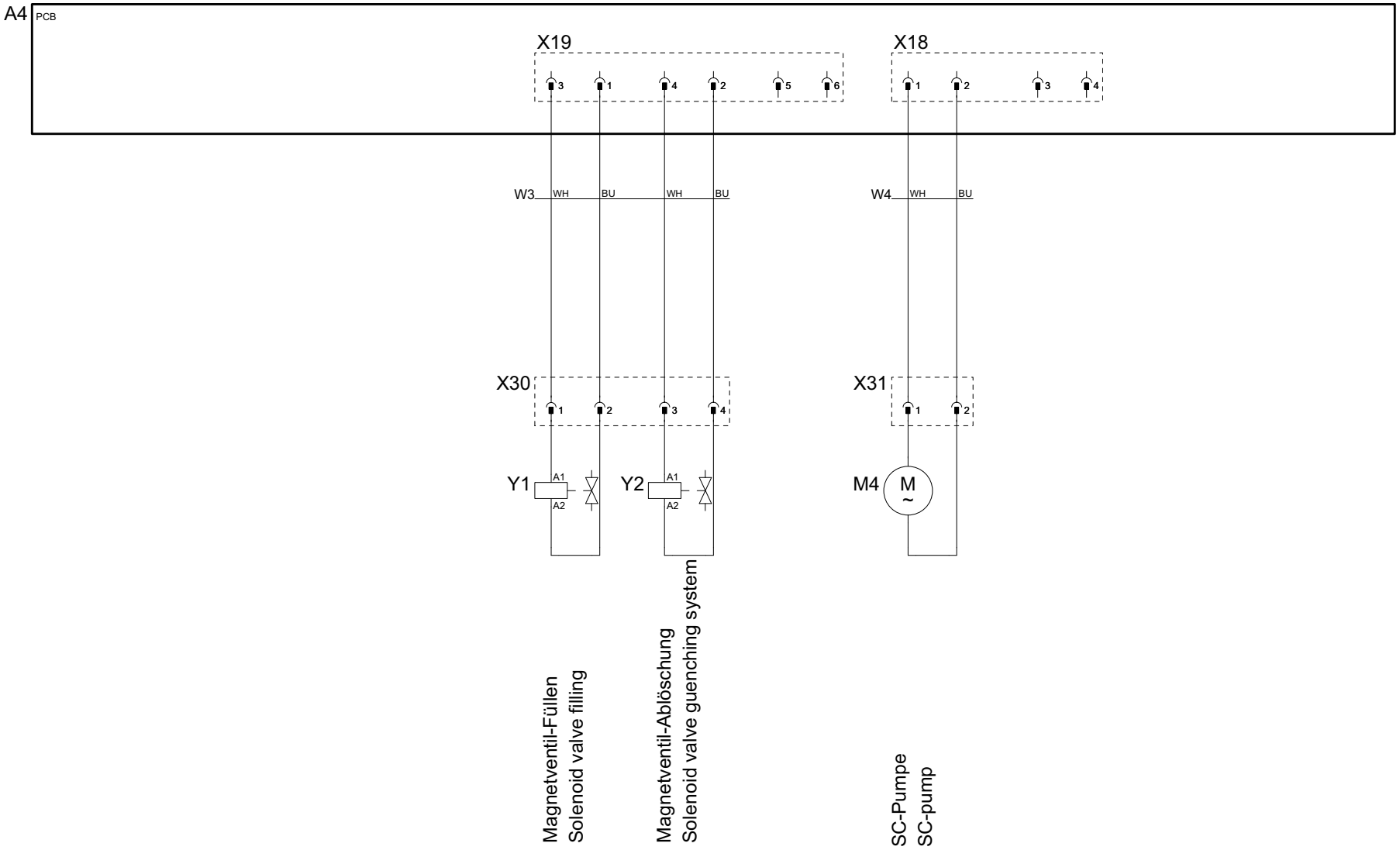
Thermoelement Kerntemperatur
Termocouple core temperature

Thermoelement Dampfgenerator
Thermocouple steam generator

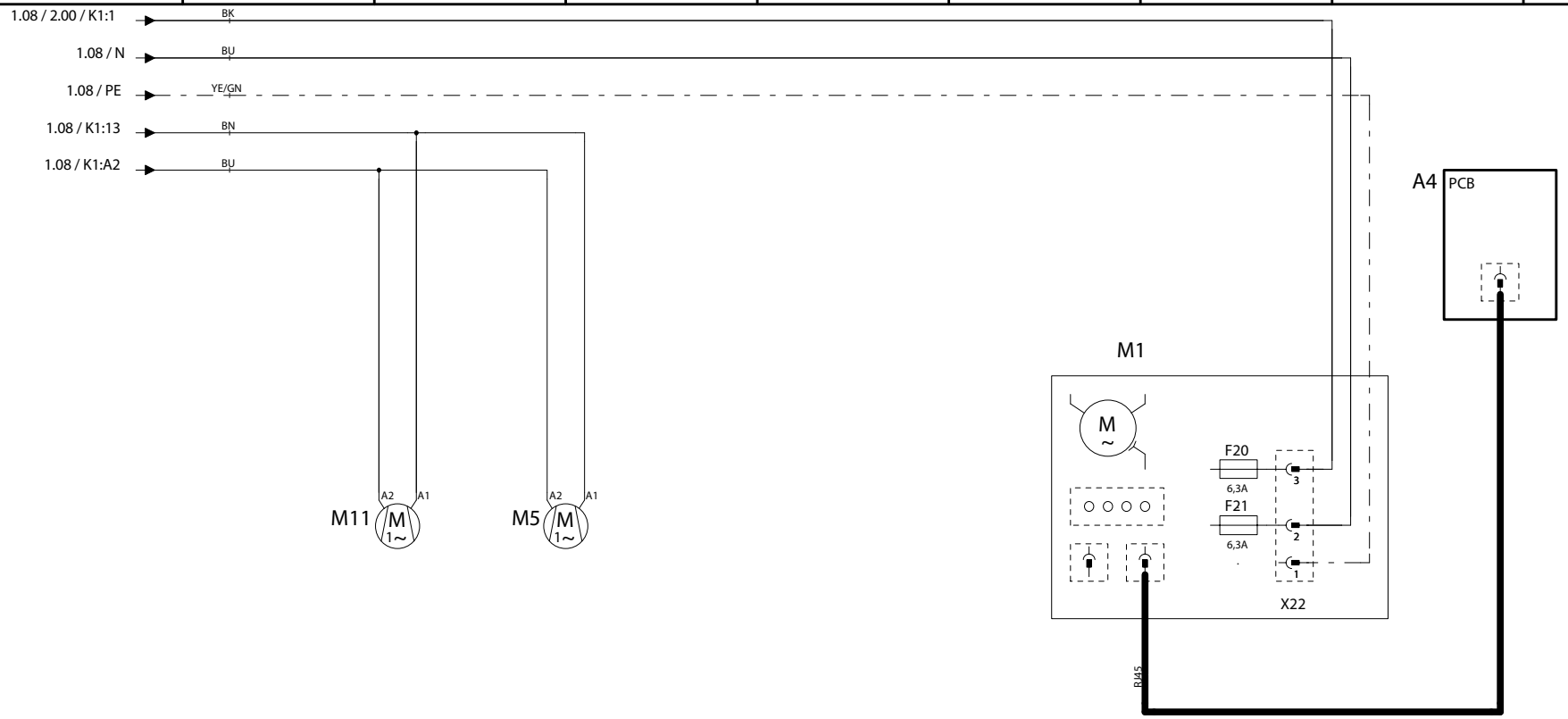
Türkontaktschalter
Door contact switch

KT-Potentiometer
CT-Potentiometer

76-00011	MODUL 3 Klima Plus, Fühler Humidity control, Sensors	CM101E	Erstellt von / Created by: PA
Version 0	-142-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 3



76-00011	MODUL 4 Wasser Water, Drain, CleanJet	CM101E	Erstellt von / Created by: PA
Version 0	-143-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 4



Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

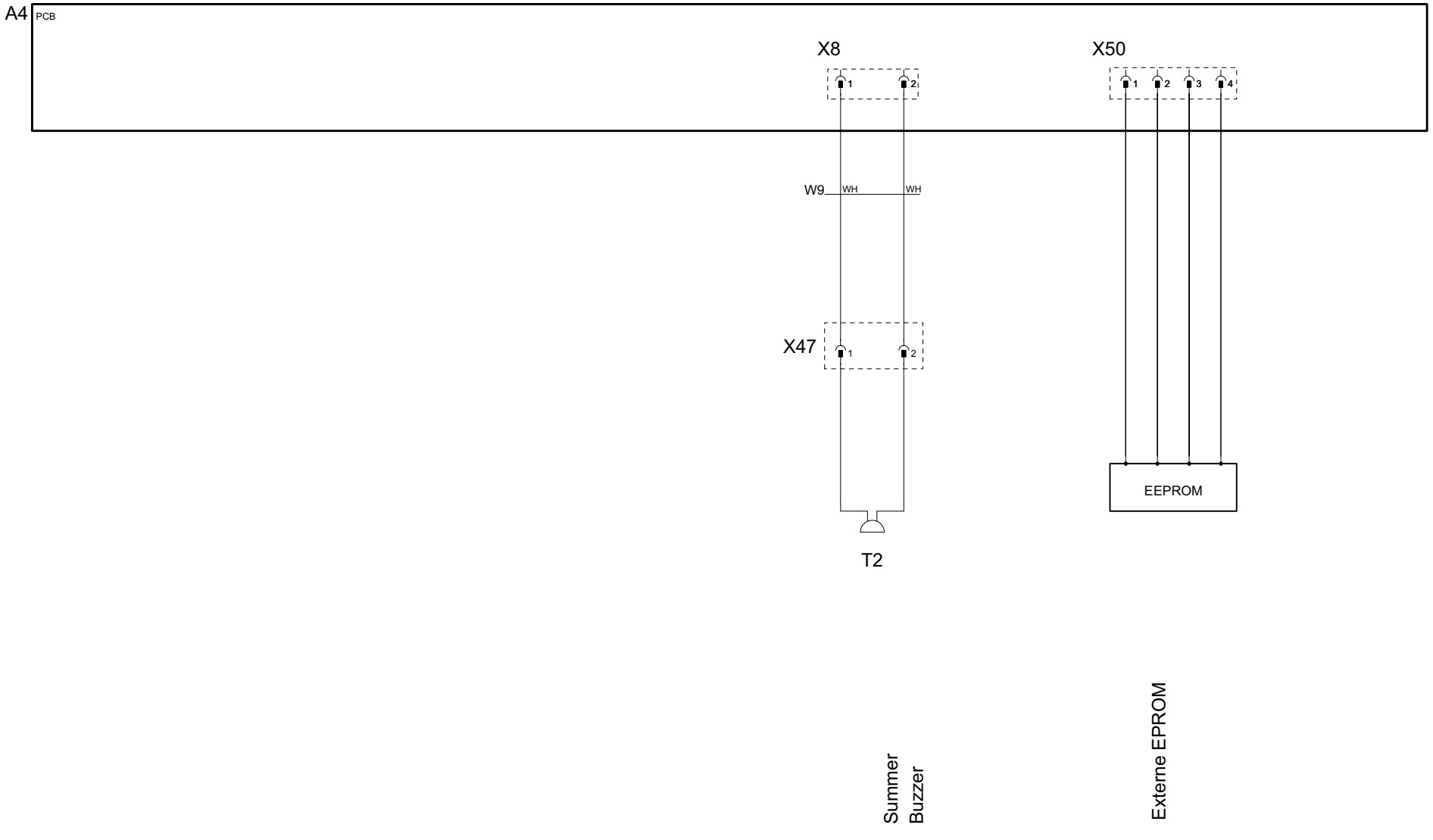
Blink code fam motor
See Training manual page 83

Kühllüfter
Cooling fan

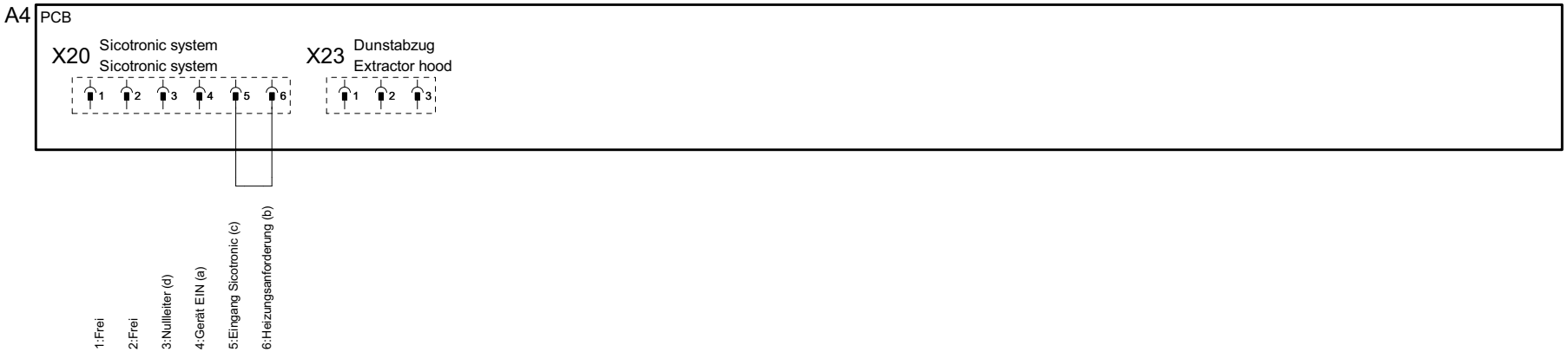
Kühllüfter
Cooling fan

Lüftermotor
Fan motor

76-00011	MODUL 5 Lüftermotor Fan Motor, Cooling Fan	CM101E	Erstellt von / Created by: PA
Version 0	-144-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 5



76-00011	MODUL 6 Summer, EEPROM Buzzer, EEPROM	CM101E	Erstellt von / Created by: PA
Version: 0	-145-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 6

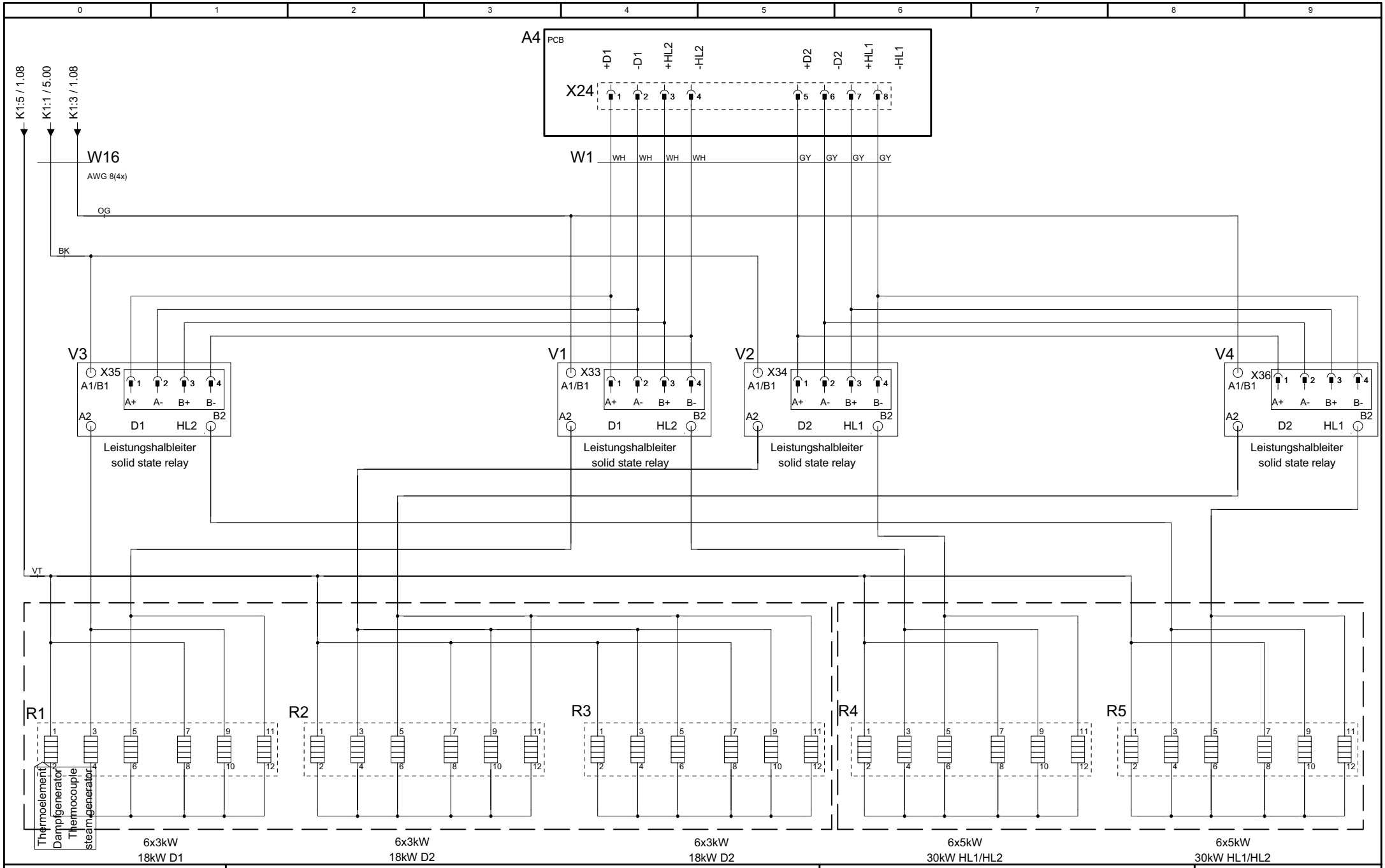


76-00011	MODUL 7 Option Options		CM101E	Erstellt von / Created by: PA
Version 0		-146-	3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 7

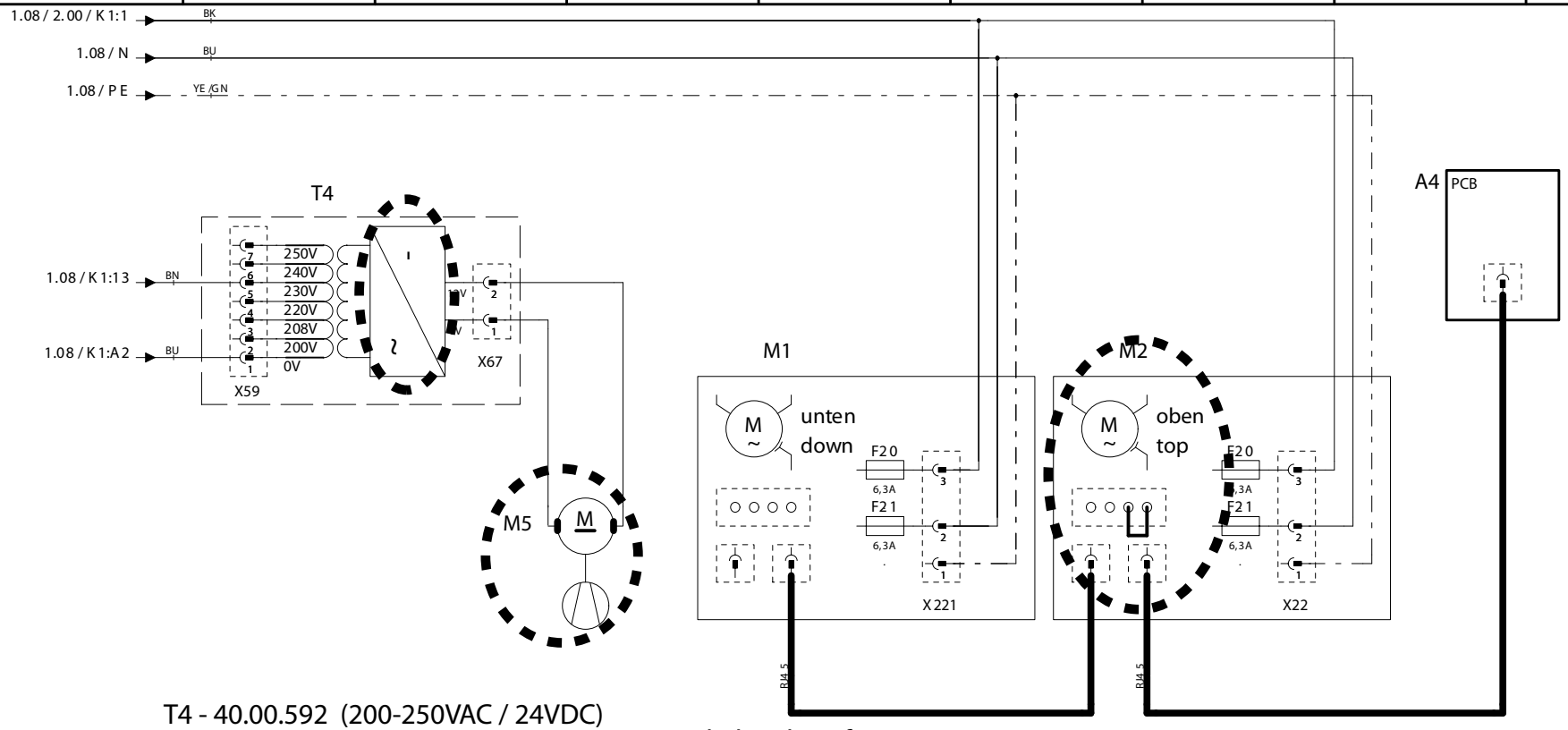
Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**	**Module** **Modul**
A4	42.00.004	Bedienplatine CM	Operator PCB CM	Modul 8
B1	40.00.395	Thermoelement Garraum	Thermocouple interior cabinet	Modul 3
B2	40.00.287	Thermoelement Ablöschung	Thermocouple quenching system	Modul 3
B3	40.01.603	Thermoelement Kerntemperatur CM	Thermocouple core temperature	Modul 3
B5	40.00.291	Thermoelement Dampfgenerator	Thermocouple steam generator	Modul 3
F1	4001.0224	Steuersicherung	Control fuse	Modul 1
F2	4001.0224	Steuersicherung	Control fuse	Modul 1
F3	40.01.329	Sicherheitstemp. Begrenzer G135°C/275°F E160°C/320°F	Safety temp. limiter G135°C/275°F E160°C/320°F	Modul 1
F4	40.00.605	Sicherheitstemperaturbegrenzer 360°C/680°F	Safety temperature limiter 360°C/680°F	Modul 1
H1	3024.0201	Halogenbeleuchtung alle	Interior cabinet light	Modul 6
K1	40.01.555	Hauptschütz	Main contactor	Modul 1
M1	40.00.274	Lüftermotor TG u. SG	Fan motor	Modul 5
M11	3101.1008	Kühllüfter 101/102E u. 202/E J/UL	Cooling fan 101/102E and 202/E J/UL only	Modul 5
M4	44.00.207	SC-Pumpe	SC-pump	Modul 4
M5	3101.1008	Kühllüfter 61-202E/G	Cooling fan	Modul 5
R1	44.00.194	Dampfheizkörper 61-202	Heating element steam 61-202	Modul 2
R2	44.00.534	Dampfheizkörper 61-202	Heating element steam 61-202	Modul 2
R4	40.00.265	Heißluftheizkörper 61-202	Heating element hot air 61-202	Modul 2
S2	3002.0402	Niveauelektrode	Water level electrode	Modul 3
S3	40.00.454	Türkontaktschalter	Door contact switch	Modul 3
S7	40.00.464	Potentiometer Zeit / Kerntemperatur	Time / Core potentiometer	
T1	40.00.278	Trafo	Transformer	Modul 1
T2	3006.0107	Alarmsummer	Buzzer	Modul 6
V1	40.01.589	Leistungshalbleiter 61-202/E	Solid state relay	Modul 2
V2	40.01.589	Leistungshalbleiter 61-202/E	Solid state relay	Modul 2
X20	40.00.338	Sicotronic-Klemme	Sicotronic system	Modul 7
Y1	50.00.316	Magnetventil Füllen / SCC (Y3) Beschwaden	Solenoid valve filling / SCC (Y3) moistening	Modul 4
Y2	50.00.139	Magnetventil Ablöschung	Solenoid valve guenching system	Modul 4
Z1	40.00.465	Entstörfilter	Electronic noise filter	Modul 1
W0	8801.0136	Anschlusskabel	Power connection cable	Modul 1
W1	40.00.201	Kabel-Ansteuerung I/O PCB - SSR	Cable I/O PCB - SSR	Modul 2
W11	40.00.222	Kabel:Halogenbeleuchtung	Cable Halogen light	
W16	40.00.232	Kabel:Hauptschütz - SSR	Cable Main contactor - SSR	Modul 2
W17	40.00.217	Kabel: Steuerstamm	Cable Control Supply	Modul 1
W3	40.00.236	Kabel: Platine - Magnetventile	Cable pcb - solenoid valve	Modul 4
W4	40.00.219	Kabel: Platine - SC-Pumpe	Cable pcb - SC-pump	Modul 4
W5	40.00.205	Kabel:Niveauelektrode	Cable water level sensor	Modul 3
W9	40.00.212	Kabel:Alarmsummer	Cable Buzzer	Modul 6

	Änderungsdatum	**2004-04-02 11:36:57**	Name	**CM101E**	Dokument-Nr.	**78-00022**
	Erzeuger	**SCHD**	Spannung	**3NAC 400/415V 50-60Hz**	Version	**0**



76-00017	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating -148-	CM202E	Erstellt von / Created by: PA
Version 0		3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 2



T4 - 40.00.592 (200-250VAC / 24VDC)
M5 - 40.00.474 (24VDC)

Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

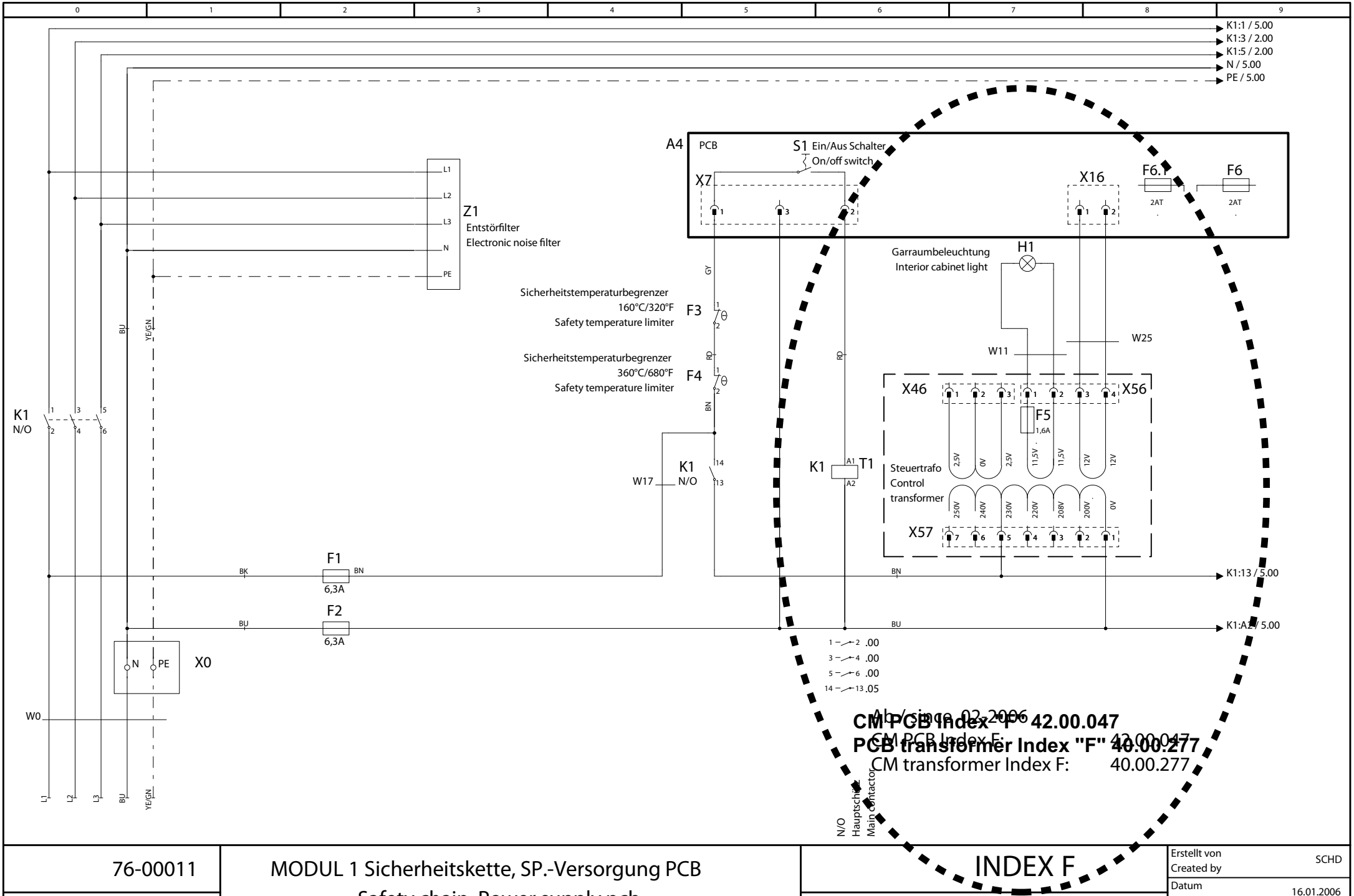
Blink code fam motor
See Training manual page 83

Trafo 12V
Transformer 12V

Kühllüfter
Cooling fan

unten
down
Lüftermotor
Fan motor

oben
top
Lüftermotor
Fan motor

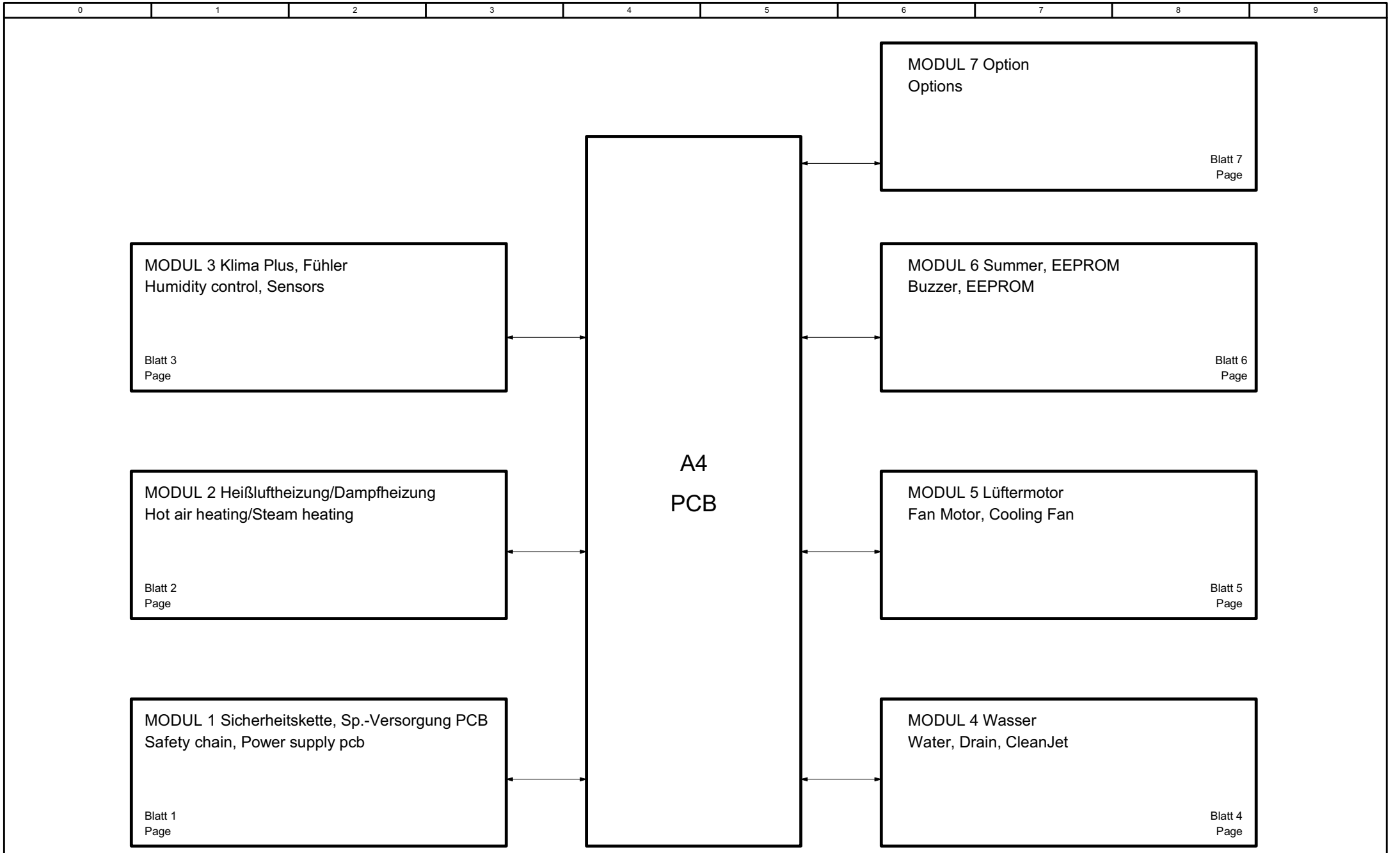


76-00011	MODUL 1 Sicherheitskette, SP.-Versorgung PCB Safety chain, Power supply pcb	INDEX F	Erstellt von / Created by: SCHD
Version 3	-150-	3NAC400V 50-60Hz	Datum / Date: 16.01.2006 Blatt / Page: 1

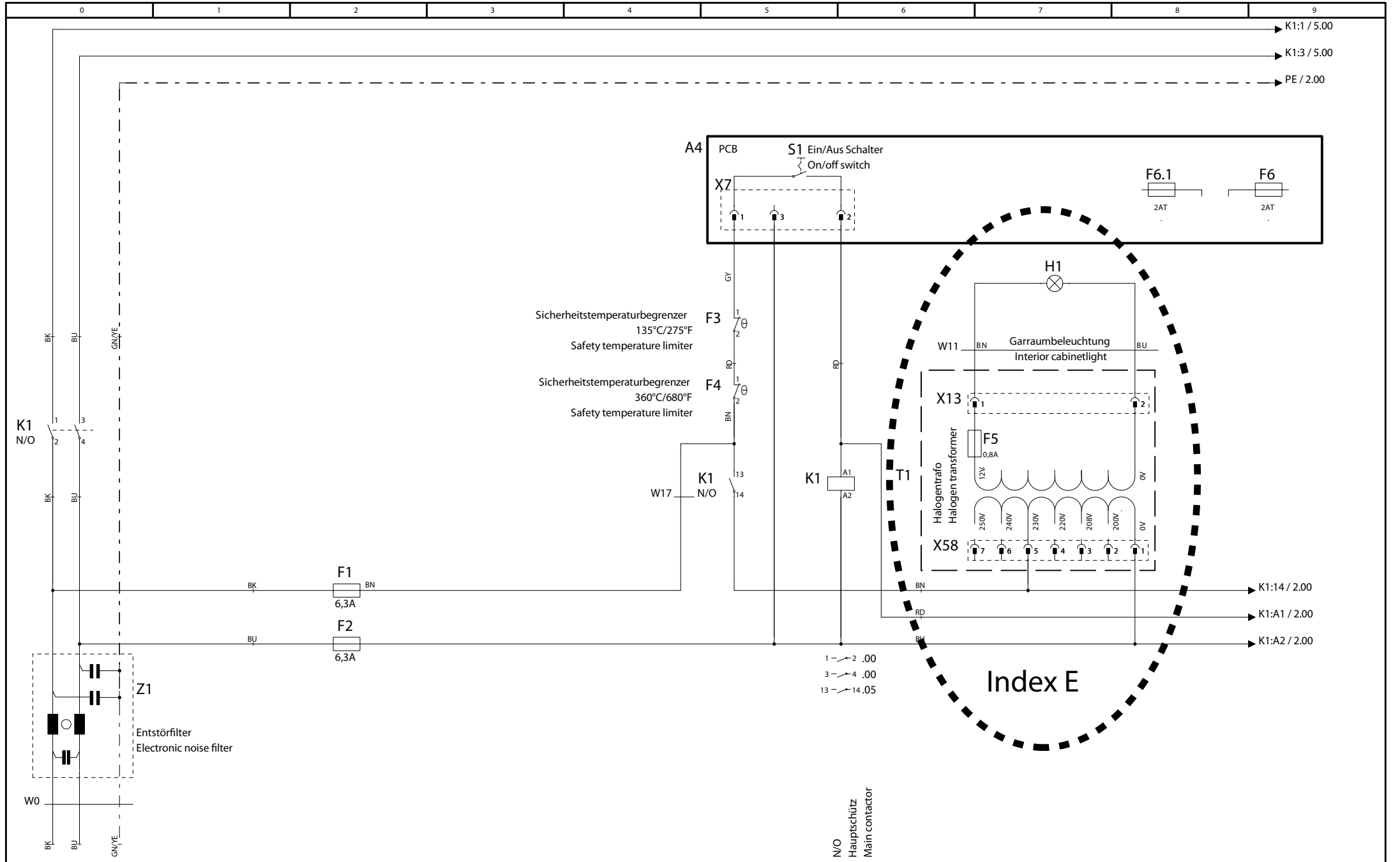
Deckblatt Elektrische Dokumentation, Cover sheet for electrical Documentation

Die Elektrische Dokumentation besteht aus: 1. diesem Deckblatt, 2. dem Schaltplan und 3. der Legende der elektrischen Bauteile
The electric documentation contains: 1. this cover sheet, 2. the wiring diagram and 3. the bill of electrical material (BOM)

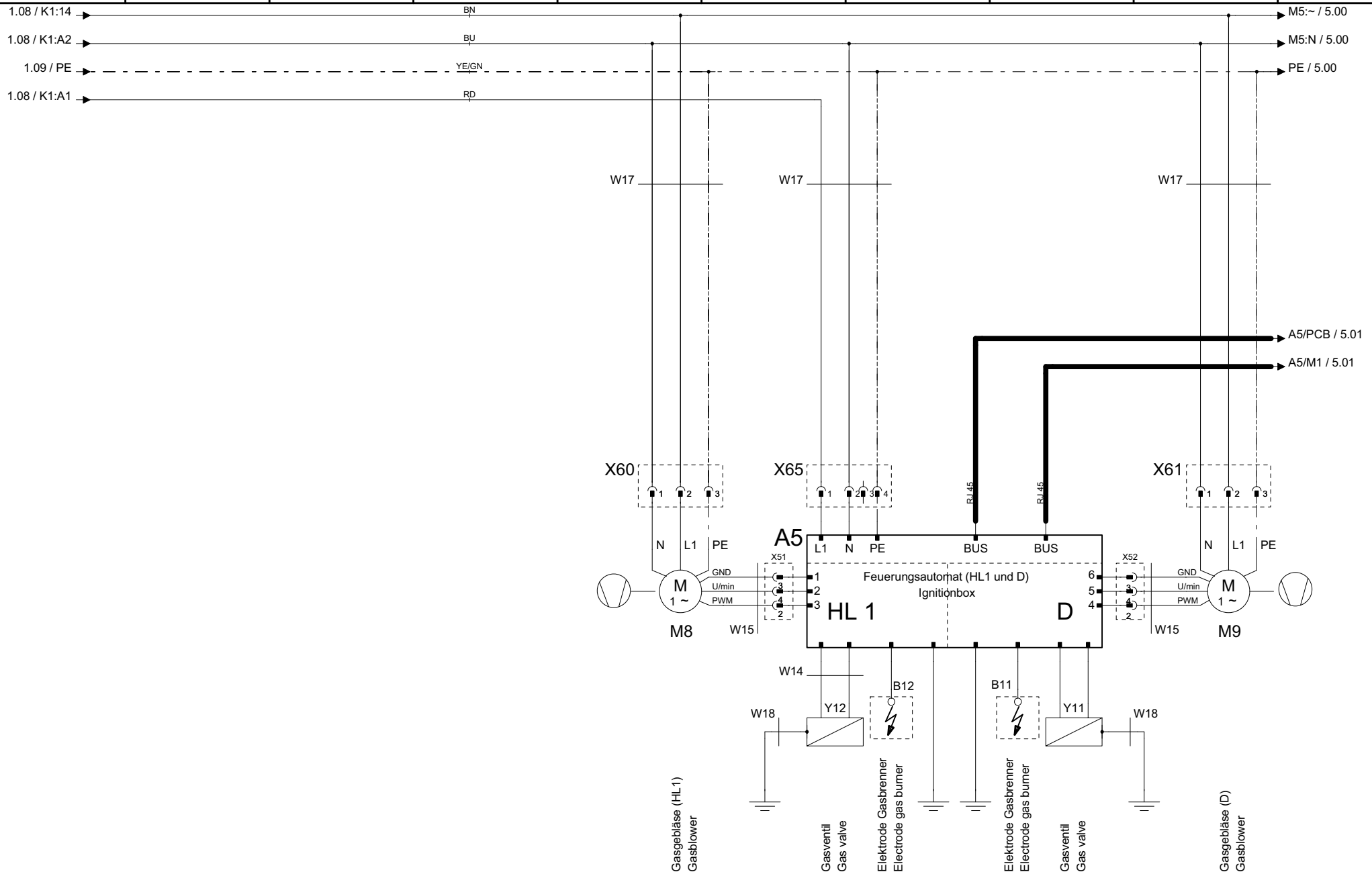
Deckblatt-Nr. **Front Page No.**	75-20067	**Version**	0
Typ / Type	CM101G		
Schaltplan **Wiring diagram** **Spannung (SPL)** **Voltage**	76-00050 1NAC230V 50-60Hz	**Version**	0
Legende **Legend electr. components**	78-00036	**Version**	0
Geräteserialnr. **Serial number**	G11ME0401	**Version**	0401
Erstellt am **Created at**	05.05.2004 09:02:51	**Ersteller** **Creator**	SCHD
Gültig ab **Valid from**	05.05.2004		



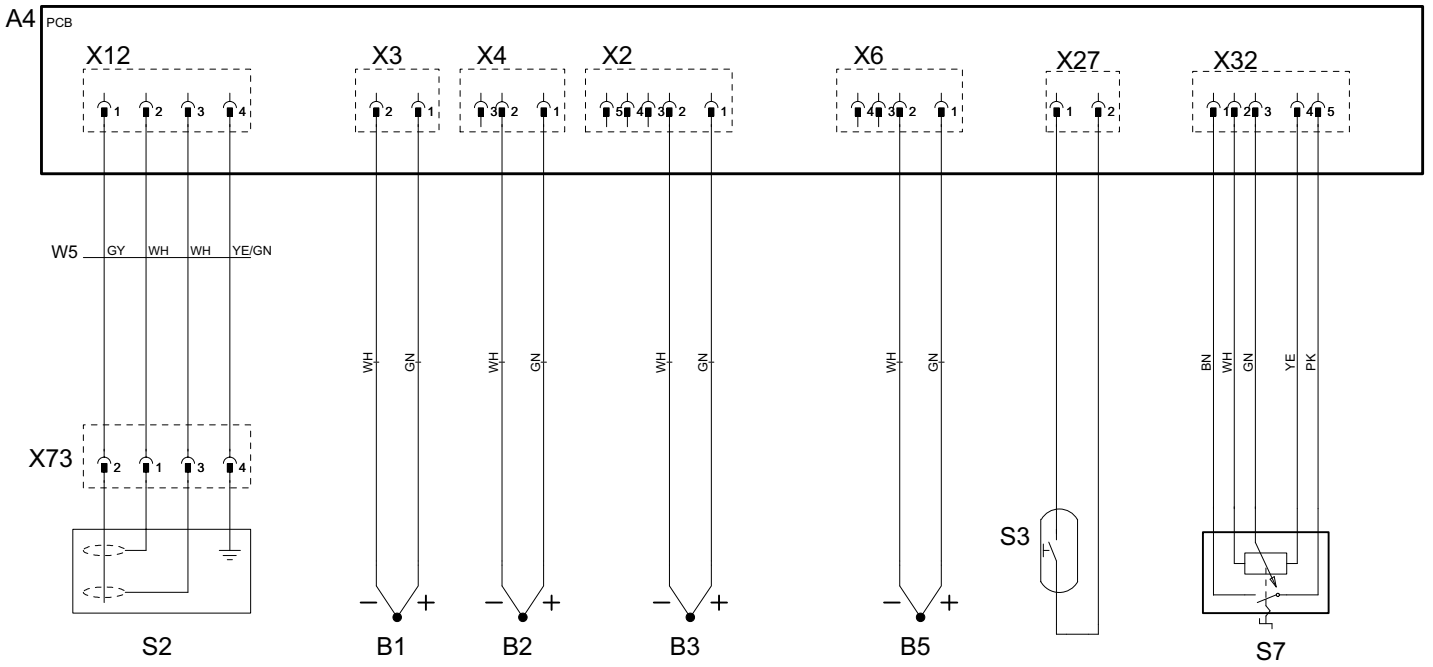
76-00050	Überblick	CM 101/102 G	Erstellt von / Created by: PA
Version 0	-152-	1NAC230V 50-60Hz	Datum / Date: 30.04.2004
			Blatt / Page: 8



76-00050	MODUL 1 Sicherheitskette, SP.-Versorgung PCB Safety chain, Power supply pcb	CM 101/102 G	Erstellt von / Created by: PA
Version: 0	-153-	1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 1



76-00050	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating	CM 101/102 G	Erstellt von / Created by: PA
Version: 0	-154-	1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 2



Niveauelektrode
Water level sensor

Thermoelement Garraum
Thermocouple cooking cabinet

Thermoelement Ablöschung
Thermocouple quenching system

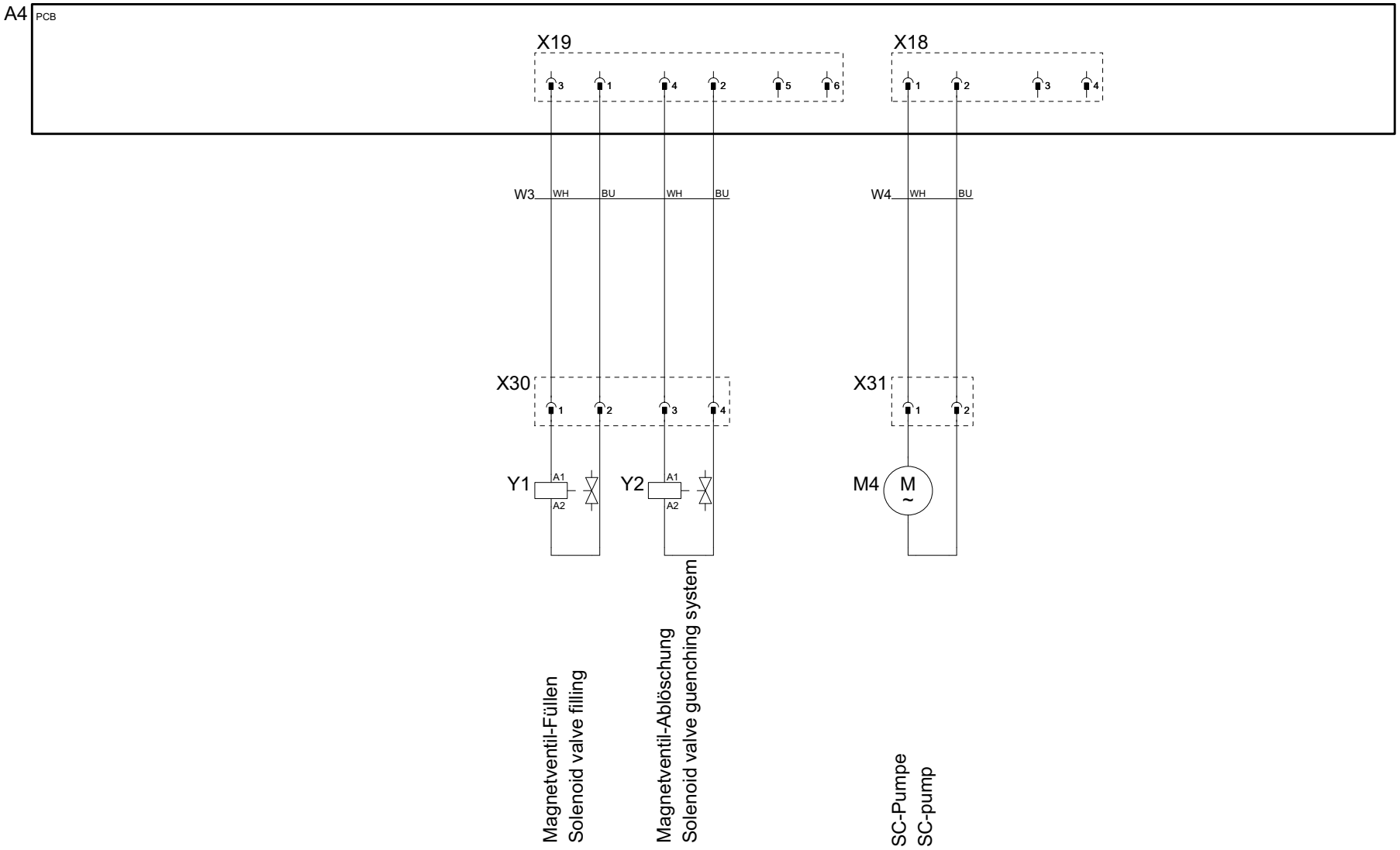
Thermoelement Kerntemperatur
Termocouple core temperature

Thermoelement Dampfgenerator
Thermocouple steam generator

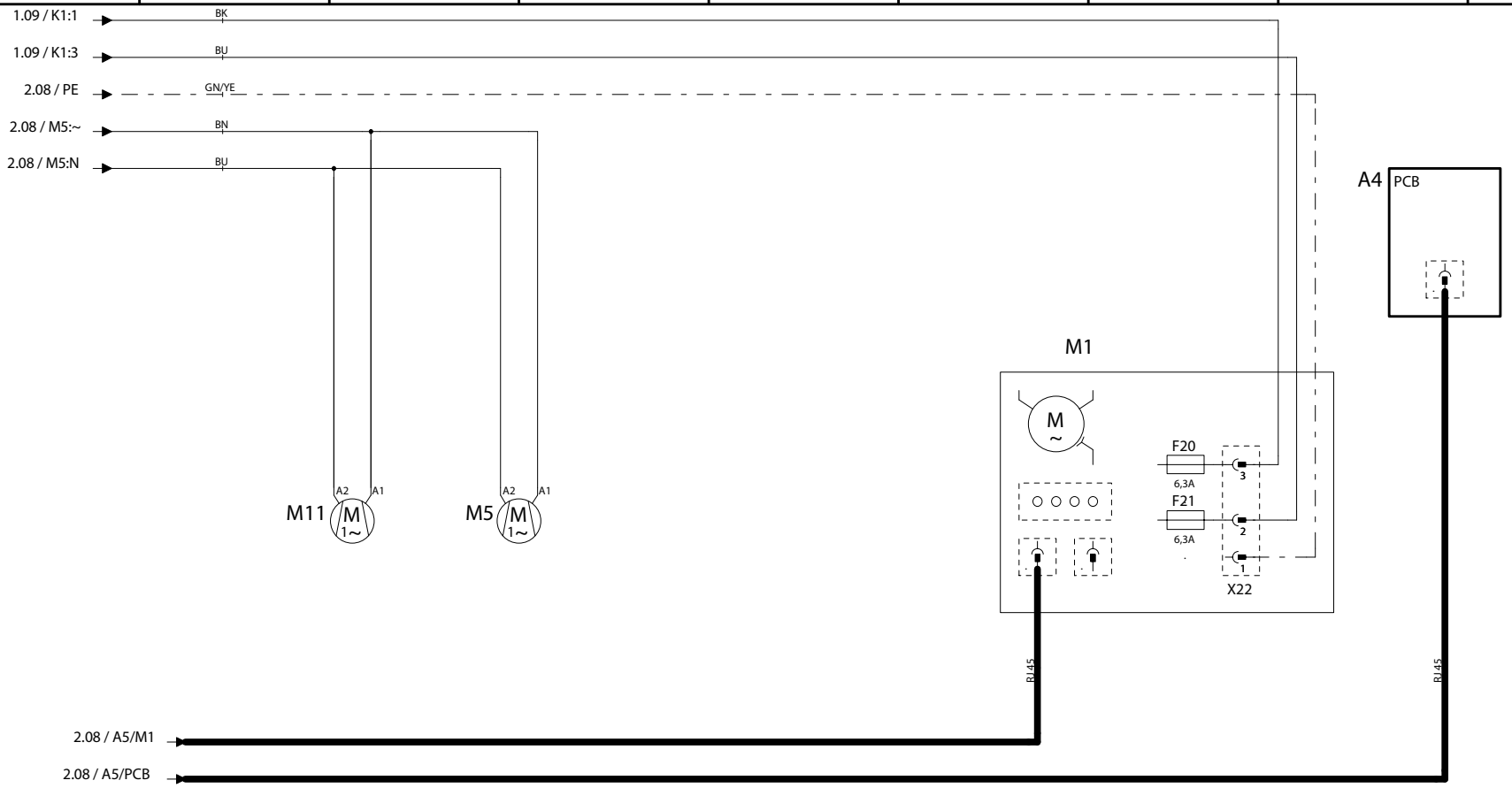
Türkontaktschalter
Door contact switch

KT-Potentiometer
CT-Potentiometer

76-00050	MODUL 3 Klima Plus, Fühler Humidity control, Sensors	CM 101/102 G	Erstellt von / Created by: PA
Version 0	-155-	1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 3



76-00050	MODUL 4 Wasser Water, Drain, CleanJet	CM 101/102 G	Erstellt von / Created by: PA
Version 0	-156-	1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 4



Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

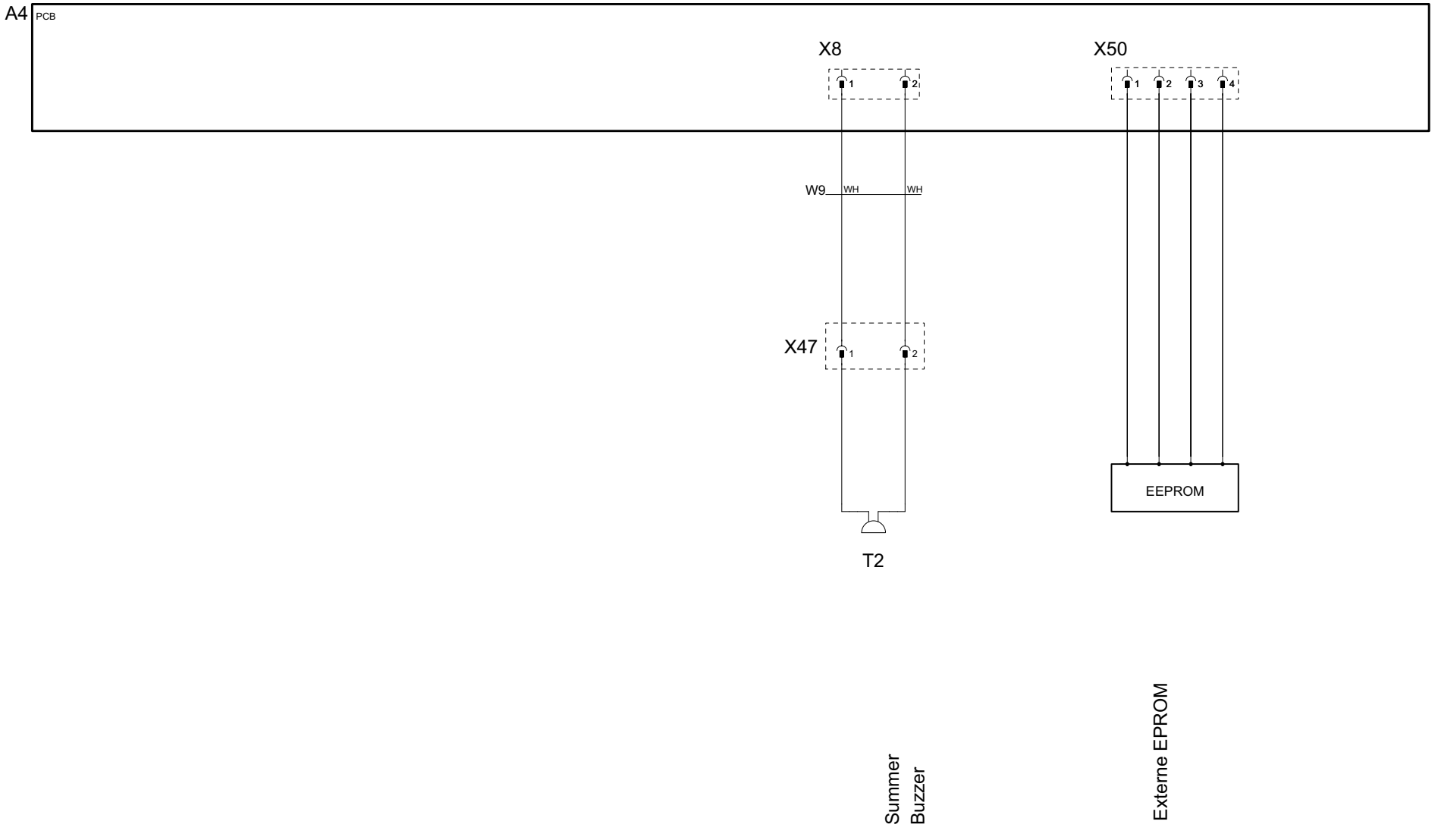
Blink code fam motor
See Training manual page 83

Kühllüfter
Cooling fan

Kühllüfter
Cooling fan

Lüftermotor
Fan motor

76-00050	MODUL 5 Lüftermotor Fan Motor, Cooling Fan	CM 101/102 G	Erstellt von / Created by: PA
Version 0	-157-	1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 5



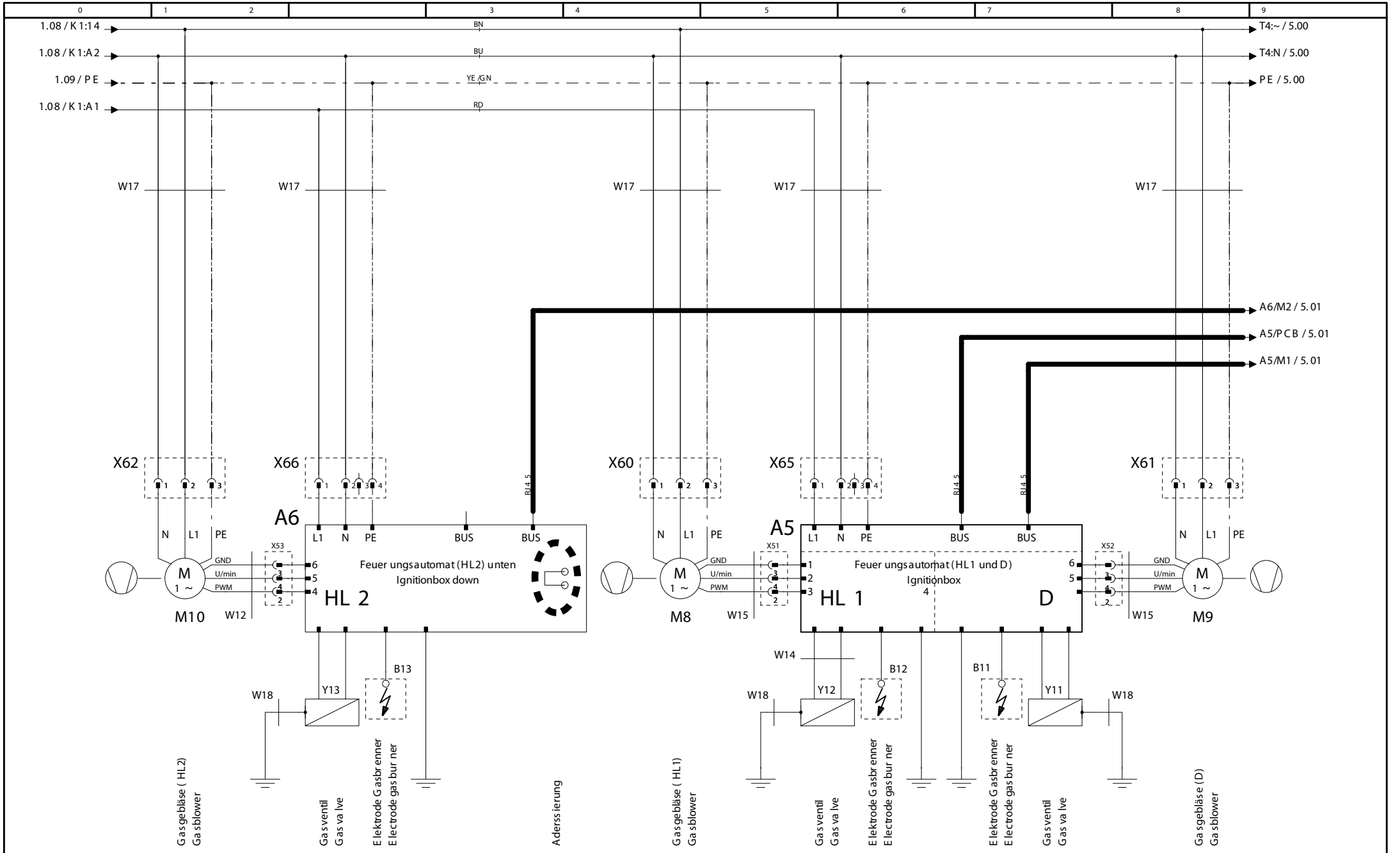
76-00050	MODUL 6 Summer, EEPROM Buzzer, EEPROM	-158-	CM 101/102 G	Erstellt von / Created by: PA
Version: 0			1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 6

76-00050	MODUL 7 Option Options	-159-	CM 101/102 G	Erstellt von / Created by: PA
Version 0			1NAC230V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 7

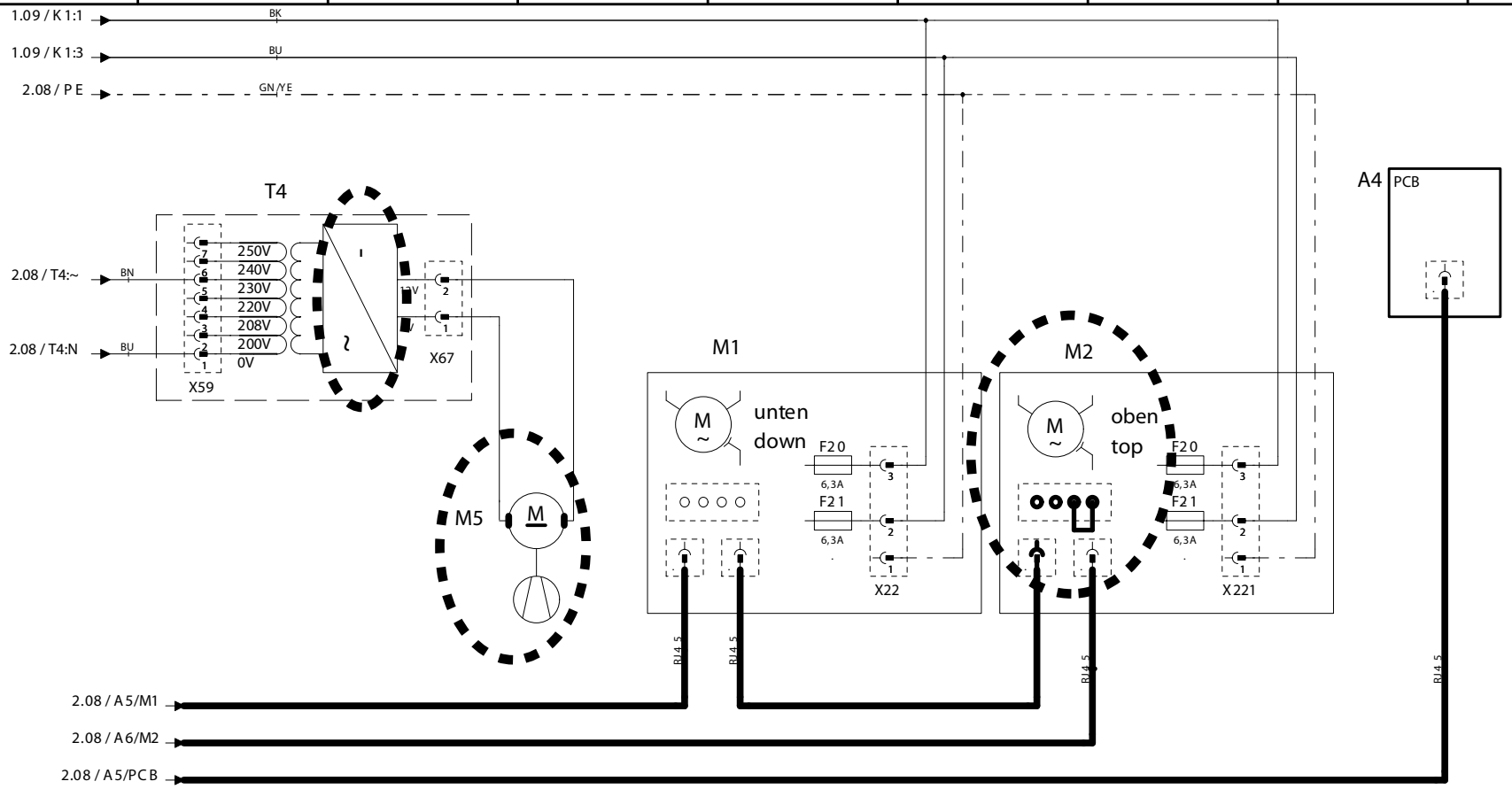
Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**	**Module** **Modul**
A4	42.00.004	Bedienplatine CM	Operator PCB CM	Modul 8
A5	74.00.221	Feuerungsautomat Brenner 61-202	Ignition box	Modul 2
B1	40.01.097	Thermoelement Garraum	Thermocouple interior cabinet	Modul 3
B2	40.00.287	Thermoelement Ablöschung	Thermocouple quenching system	Modul 3
B3	40.01.603	Thermoelement Kerntemperatur CM	Thermocouple core temperature	Modul 3
B5	40.01.095	Thermoelement Dampfgenerator	Thermocouple steam generator	Modul 3
F1	4001.0224	Steuersicherung	Control fuse	Modul 1
F2	4001.0224	Steuersicherung	Control fuse	Modul 1
F3	3014.0328	Sicherheitstemp. Begrenzer G135°C/275°F E160°C/320°F	Safety temp. limiter G135°C/275°F E160°C/320°F	Modul 1
F4	40.01.482	Sicherheitstemperaturbegrenzer 360°C/680°F	Safety temperature limiter 360°C/680°F	Modul 1
H1	3024.0201	Halogenbeleuchtung alle	Interior cabinet light	Modul 6
K1	40.00.451	Hauptschütz	Main contactor	Modul 1
M1	40.00.274	Lüftermotor TG u. SG	Fan motor	Modul 5
M11	3101.1008	Kühllüfter 101/102E u. 202/E J/UL	Cooling fan 101/102E and 202/E J/UL only	Modul 5
M4	44.00.207	SC-Pumpe	SC-pump	Modul 4
M5	3101.1008	Kühllüfter 61-202E/G	Cooling fan	Modul 5
M8	70.00.028	Gasgebläse HL unten	Gasblower Hot Air bottom	Modul 2
M9	70.00.028	Gasgebläse DG	Gasblower Steam	Modul 2
S2	44.00.287	Niveauelektrode	Water level electrode	Modul 3
S3	40.00.454	Türkontaktschalter	Door contact switch	Modul 3
S7	40.00.464	Potentiometer Zeit / Kerntemperatur	Time / Core potentiometer	
T1	40.00.278	Trafo	Transformer	Modul 1
T2	3006.0107	Alarmsummer	Buzzer	Modul 6
Y1	50.00.316	Magnetventil Füllen / SCC (Y3) Beschwaden	Solenoid valve filling / SCC (Y3) moistening	Modul 4
Y2	50.00.139	Magnetventil Ablöschung	Solenoid valve guenching system	Modul 4
Z1	40.01.483	Entstörfilter	Electronic noise filter	Modul 1
W0	40.01.596	Anschlusskabel	Power connection cable	Modul 1
W11	40.00.222	Kabel:Halogenbeleuchtung	Cable Halogen light	
W14	40.00.230	Kabel:Feuerungsautomat - Gasventil	Cable Ignition box - gas valve	Modul 2
W15	40.00.215	Kabel:Feuerungsautomat - Gasgebläse	Cable Ignition box - gas blower motor	Modul 2
W17	40.00.246	Kabel: Steuerstamm	Cable Control Supply	Modul 1
W18	40.00.237	Kabel:Erdung Gasventil	Cable ground connection gas valve	Modul 2
W3	40.00.236	Kabel: Platine - Magnetventile	Cable pcb - solenoid valve	Modul 4
W4	40.00.219	Kabel: Platine - SC-Pumpe	Cable pcb - SC-pump	Modul 4
W5	40.00.205	Kabel:Niveauelektrode	Cable water level sensor	Modul 3
W9	40.00.212	Kabel:Alarmsummer	Cable Buzzer	Modul 6

	Änderungsdatum	**2004-04-01 11:23:09**	Name	**CM101G**	Dokument-Nr.	**78-00036**
	Erzeuger	**SCHD**	Spannung	**1NAC230V 50-60Hz**	Version	**0**



76-00054	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating	CM 201/202 G	Erstellt von / Created by: PA
Version: 0	-161-	1NAC 230V 50- 60Hz	Datum / Date: 03.05.2004
			Blatt / Page: 2



T4 - 40.00.592 (200-250VAC / 24VDC)
M5 - 40.00.474 (24VDC)

Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

Blink code fam motor
See Training manual page 83

12V Trafo

Kühllüfter
Cooling fan

unten
down
Lüftermotor
Fan motor

oben
top
Lüftermotor
Fan motor

76-00054	MODUL 5 Lüfter motor Fan Motor, Cooling Fan	CM 201/202 G	Erstellt von / Created by: PA
Version 0	-162-	1NAC 230V 50- 60Hz	Datum / Date: 03.05.2004
			Blatt / Page: 5

Positionsliste
Bill of material

Name Name	Artikelnr. Item number	Artikelbezeichnung	Item description	Module Modul
A4	42.00.004	Bedienplatine CM	Operator PCB CM	Modul 8
A5	74.00.221	Feuerungsautomat Brenner 61-202	Ignition box	Modul 2
A6	74.00.221	Feuerungsautomat Brenner 201/202 HL	Ignition box	Modul 2
B1	40.01.099	Thermoelement Garraum	Thermocouple interior cabinet	Modul 3
B2	40.00.398	Thermoelement Ablöschung	Thermocouple quenching system	Modul 3
B3	40.00.298	Thermoelement Kerntemperatur CM	Thermocouple core temperature	Modul 3
B5	40.01.095	Thermoelement Dampfgenerator	Thermocouple steam generator	Modul 3
F1	4001.0224	Steuersicherung	Control fuse	Modul 1
F2	4001.0224	Steuersicherung	Control fuse	Modul 1
F3	3014.0328	Sicherheitstemp. Begrenzer G135°C/275°F E160°C/320°F	Safety temp. limiter G135°C/275°F E160°C/320°F	Modul 1
F4	40.01.482	Sicherheitstemperaturbegrenzer 360°C/680°F	Safety temperature limiter 360°C/680°F	Modul 1
H1	3024.0201	Halogenbeleuchtung alle	Interior cabinet light	Modul 6
H2	3024.0201	Halogenbeleuchtung 201/202	Interior cabinet light	Modul 6
K1	40.00.451	Hauptschütz	Main contactor	Modul 1
M1	40.00.274	Lüftermotor TG u. SG	Fan motor	Modul 5
M10	70.00.028	Gasgebläse Hl oben	Gas blower motor Hot Air top	Modul 2
M2	40.00.274	Lüftermotor SG	Fan motor 201/202	Modul 5
M4	44.00.207	SC-Pumpe	SC-pump	Modul 4
M5	40.00.474	Kühllüfter 61-202E/G	Cooling fan	Modul 5
M8	70.00.028	Gasgebläse HL unten	Gasblower Hot Air bottom	Modul 2
M9	70.00.067	Gasgebläse DG	Gasblower Steam	Modul 2
S2	44.00.287	Niveauelektrode	Water level electrode	Modul 3
S3	40.00.454	Türkontaktschalter	Door contact switch	Modul 3
S7	40.00.464	Potentiometer Zeit / Kerntemperatur	Time / Core potentiometer	
T1	40.00.333	Trafo	Transformer	Modul 1
T2	3006.0107	Alarmsummer	Buzzer	Modul 6
T4	40.00.592	Trafo Kühllüfter	Transformer cooling fan 12V DC	Modul 5
Y1	50.00.316	Magnetventil Füllen / SCC (Y3) Beschwaden	Solenoid valve filling / SCC (Y3) moistening	Modul 4
Y2	50.00.139	Magnetventil Ablöschung	Solenoid valve guenching system	Modul 4
Z1	40.01.483	Entstörfilter	Electronic noise filter	Modul 1
W0	40.01.596	Anschlusskabel	Power connection cable	Modul 1
W11	40.00.229	Kabel:Halogenbeleuchtung	Cable Halogen light	
W12	40.00.221	Kabel:Feuerungsautomat - Gasgebläse	Cable Ignition box - gas blower motor	Modul 2
W14	40.00.230	Kabel:Feuerungsautomat - Gasventil	Cable Ignition box - gas valve	Modul 2
W15	40.01.485	Kabel:Feuerungsautomat - Gasgebläse	Cable Ignition box - gas blower motor	Modul 2
W17	40.00.218	Kabel: Steuerstamm	Cable Control Supply	Modul 1
W18	40.00.237	Kabel:Erdung Gasventil	Cable ground connection gas valve	Modul 2
W3	40.00.220	Kabel: Platine - Magnetventile	Cable pcb - solenoid valve	Modul 4
W4	40.00.219	Kabel: Platine - SC-Pumpe	Cable pcb - SC-pump	Modul 4

	Änderungsdatum	**2004-04-19 16:21:09**	Name	**CM202G**	Dokument-Nr.	**78-00114**
	Erzeuger	**SCHD**	Spannung	**1NAC230V 50-60Hz**	Version	**0**

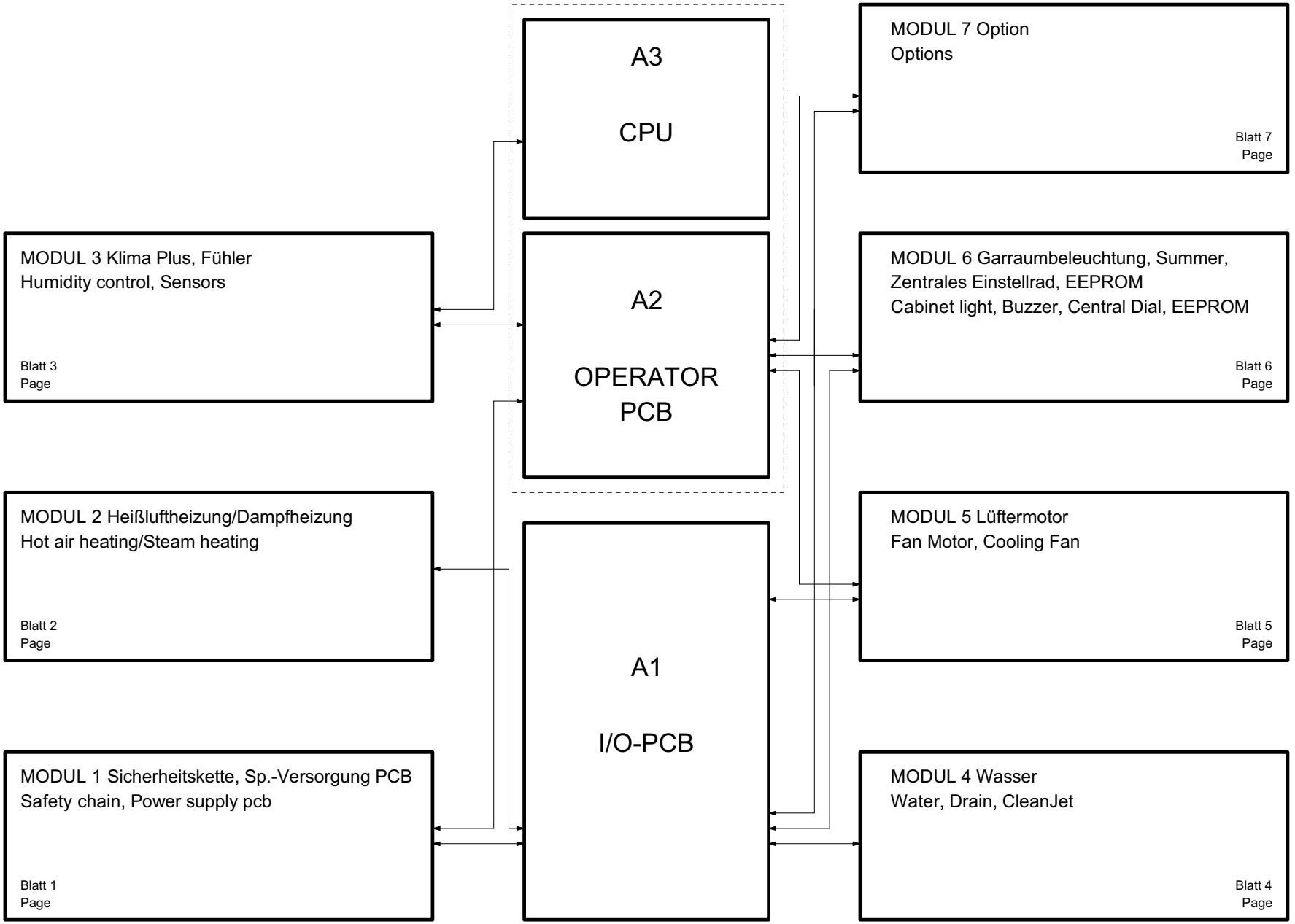
Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**	**Module** **Modul**
W5	40.01.542	Kabel:Niveauelektrode	Cable water level sensor	Modul 3
W9	40.00.212	Kabel:Alarmsummer	Cable Buzzer	Modul 6

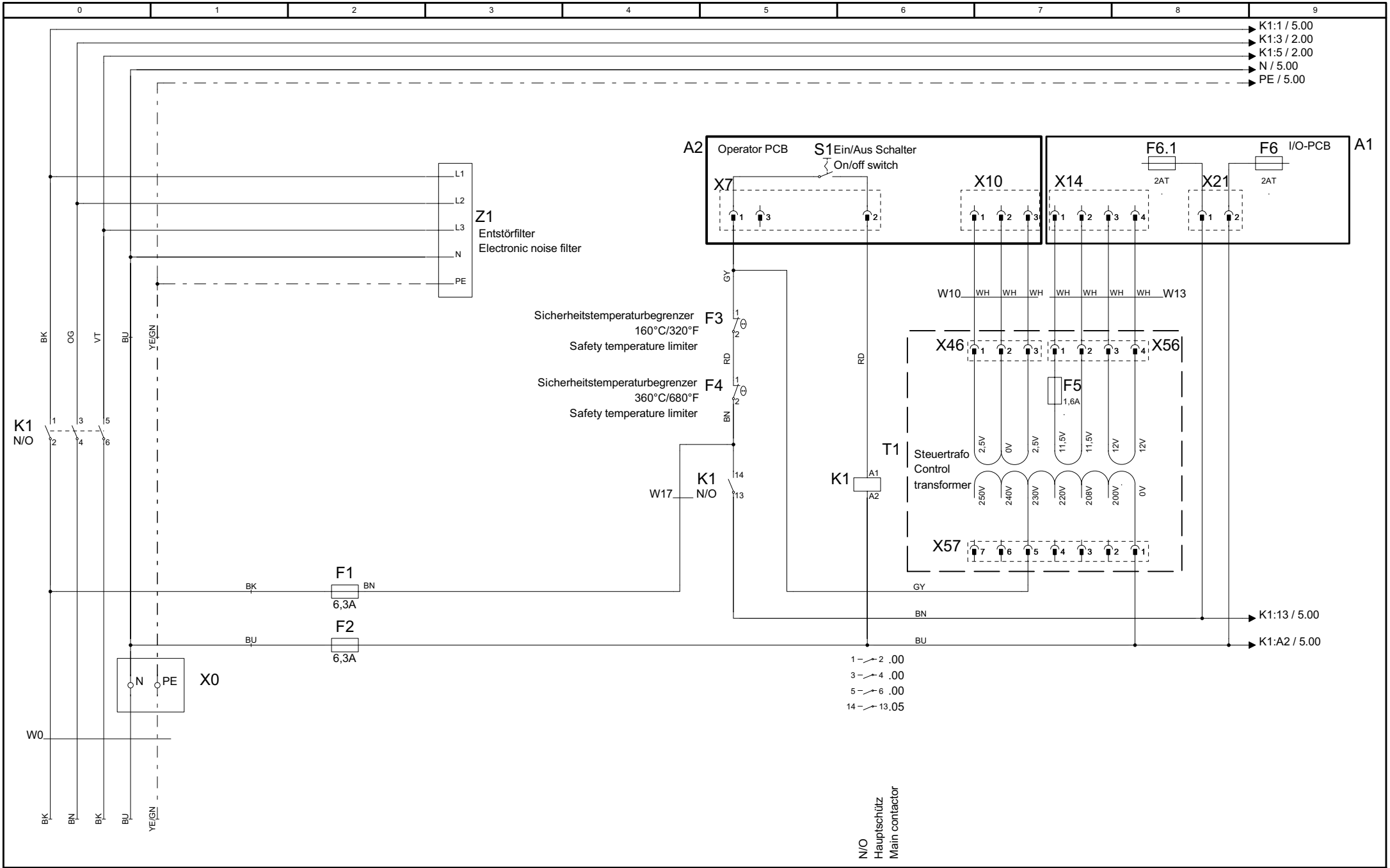
Deckblatt Elektrische Dokumentation, Cover sheet for electrical Documentation

Die Elektrische Dokumentation besteht aus: 1. diesem Deckblatt, 2. dem Schaltplan und 3. der Legende der elektrischen Bauteile
The electric documentation contains: 1. this cover sheet, 2. the wiring diagram and 3. the bill of electrical material (BOM)

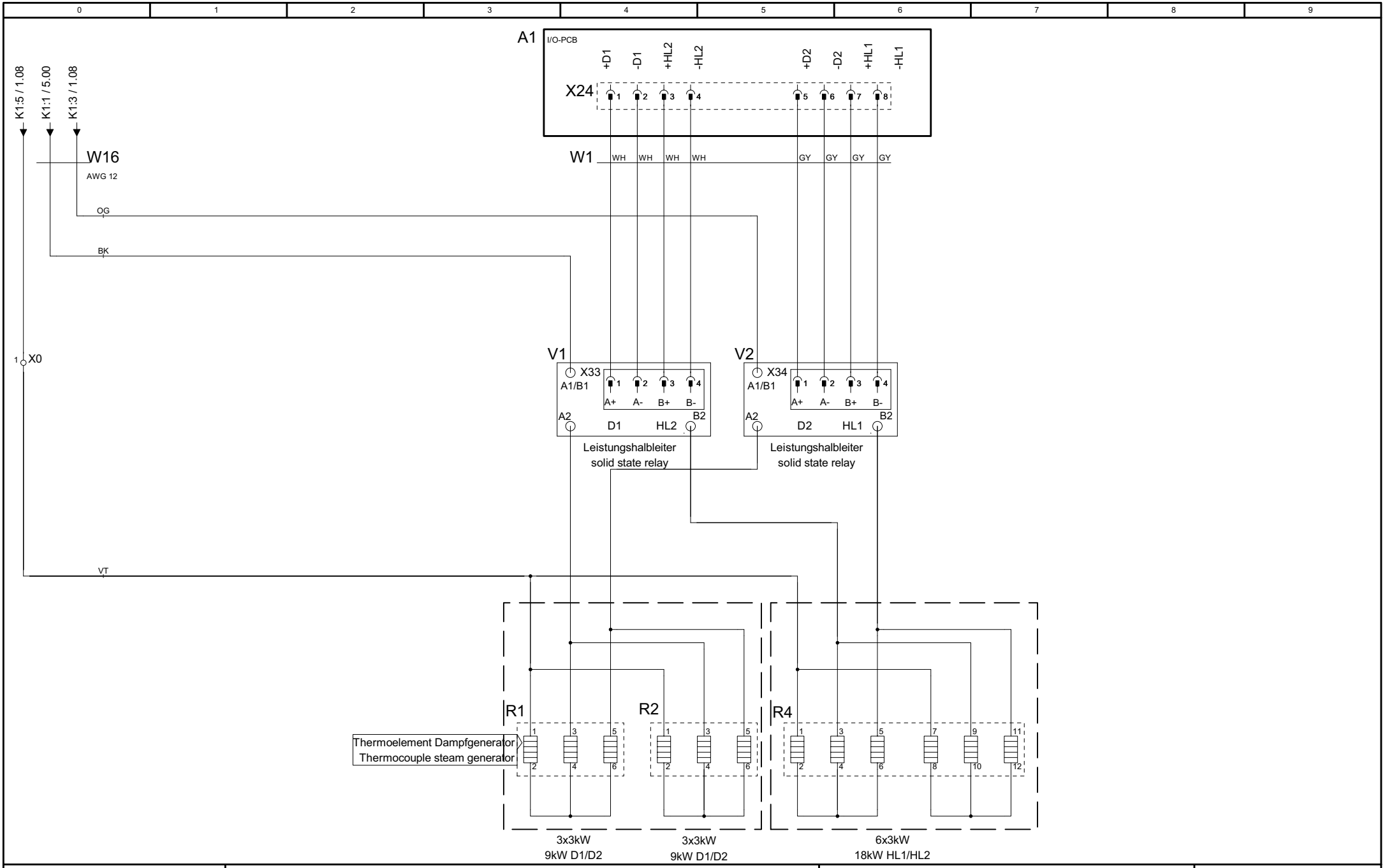
Deckblatt-Nr. **Front Page No.**	75-20065	**Version**	0
Typ / Type	SCC101E		
Schaltplan **Wiring diagram** **Spannung (SPL)** **Voltage**	76-00003 3NAC400V 50-60Hz	**Version**	0
Legende **Legend electr. components**	78-00111	**Version**	0
Geräteserialnr. **Serial number**	E11SE0401	**Version**	0401
Erstellt am **Created at**	04.05.2004 18:07:16	**Ersteller** **Creator**	SCHD
Gültig ab **Valid from**	04.05.2004		



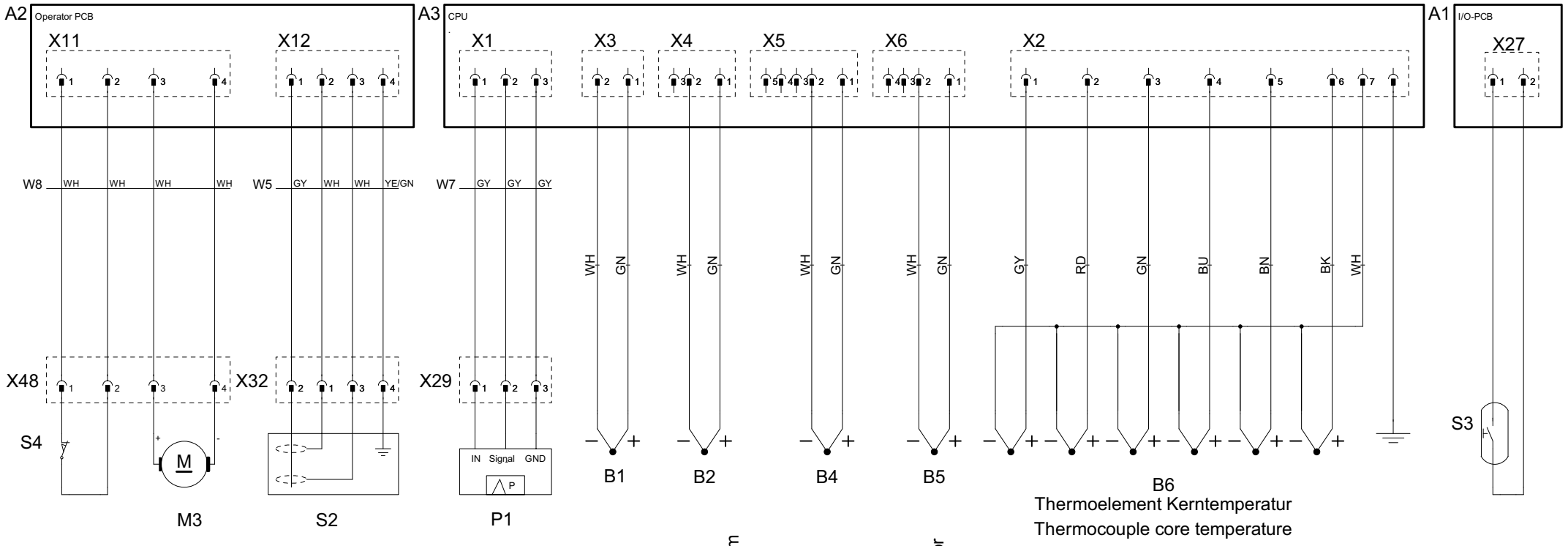
76-00003	Überblick	SCC101E	Erstellt von / Created by: PA
Version 0	-166-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004
			Blatt / Page: 8



76-00003	MODUL 1 Sicherheitskette, SP.-Versorgung PCB Safety chain, Power supply pcb	SCC101E	Erstellt von / Created by: PA
Version: 0	-167-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 1



76-00003	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating	SCC101E	Erstellt von / Created by: PA
Version: 0	-168-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004
			Blatt / Page: 2



Endschalter Klappenmotor
End position switch flap motor

Klappenmotor
Flap motor

Niveauelektrode
Water level sensor

Differenzdrucksensor
Differential pressure sensor

Thermoelement Garraum
Thermocouple cooking cabinet

Thermoelement Ablöschung
Thermocouple quenching system

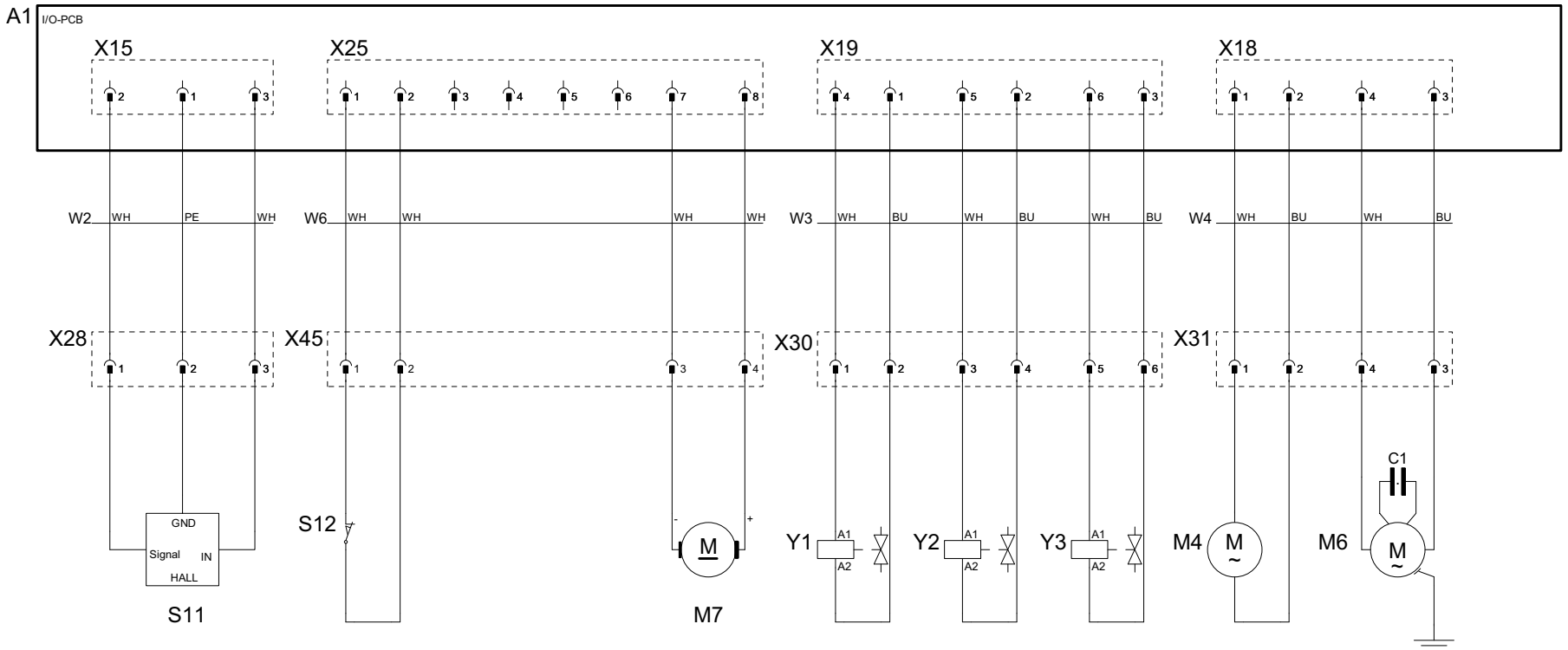
Thermoelement Feuchte
Thermocouple humidity

Thermoelement Dampfgenerator
Thermocouple steam generator

Fühler 1 Sensor 1
Fühler 2 Sensor 2
Fühler 3 Sensor 3
Fühler 4 Sensor 4
Fühler 5 Sensor 5
Fühler 6 Sensor 6

Türkontaktschalter
Door contact switch

76-00003	MODUL 3 Klima Plus, Fühler Humidity control, Sensors	SCC101E	Erstellt von / Created by: PA
Version 0	-169-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 3



CDS-Sensor
CDS-sensor

Endschalter Verschlußmotor
End switch drain valve

Verschlußmotor
Drain valve

Magnetventil-Füllen
Solenoid valve filling

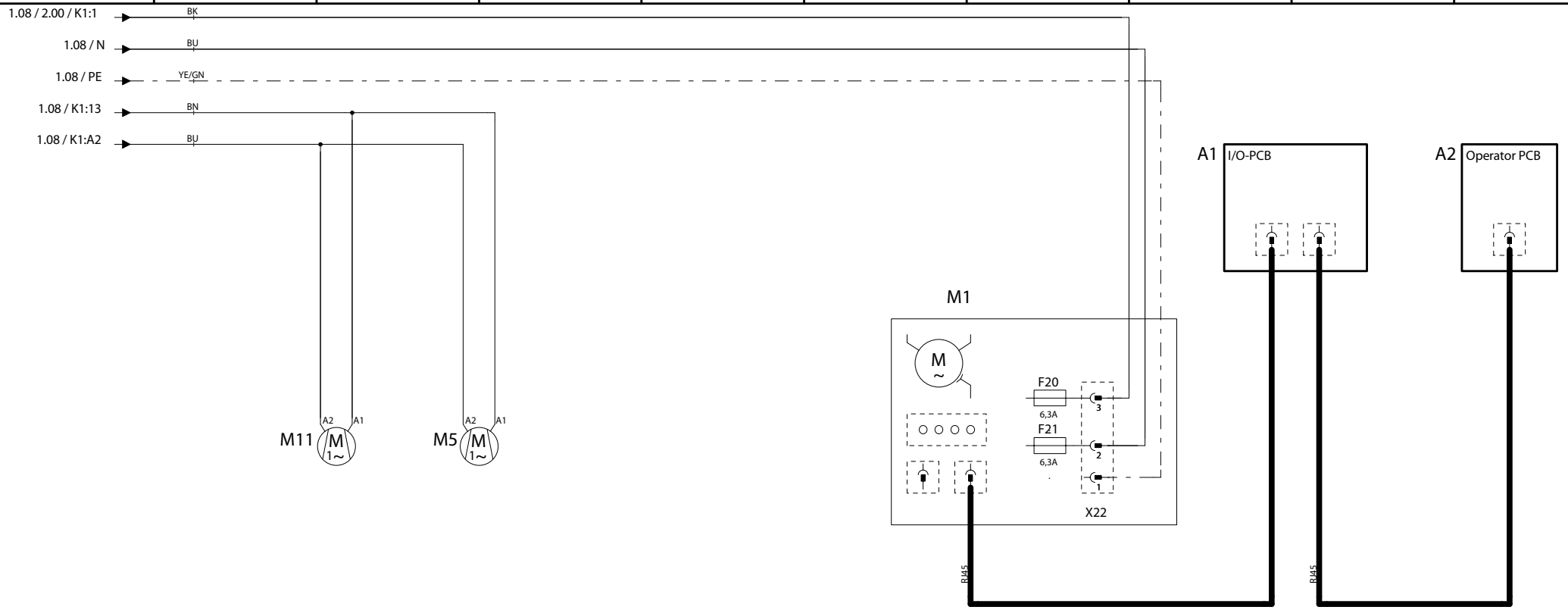
Magnetventil-Ablöschung
Solenoid valve guenching system

Magnetventil-Beschwadung
Solenoid valve moistening

SC-Pumpe
SC-pump

Kondensator C1 2,5µF
Capacitor
Umwälzpumpe Reinigung
Cleanjet circulation pump

76-00003	MODUL 4 Wasser Water, Drain, CleanJet	SCC101E	Erstellt von / Created by: PA
Version: 0	-170-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 4



Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

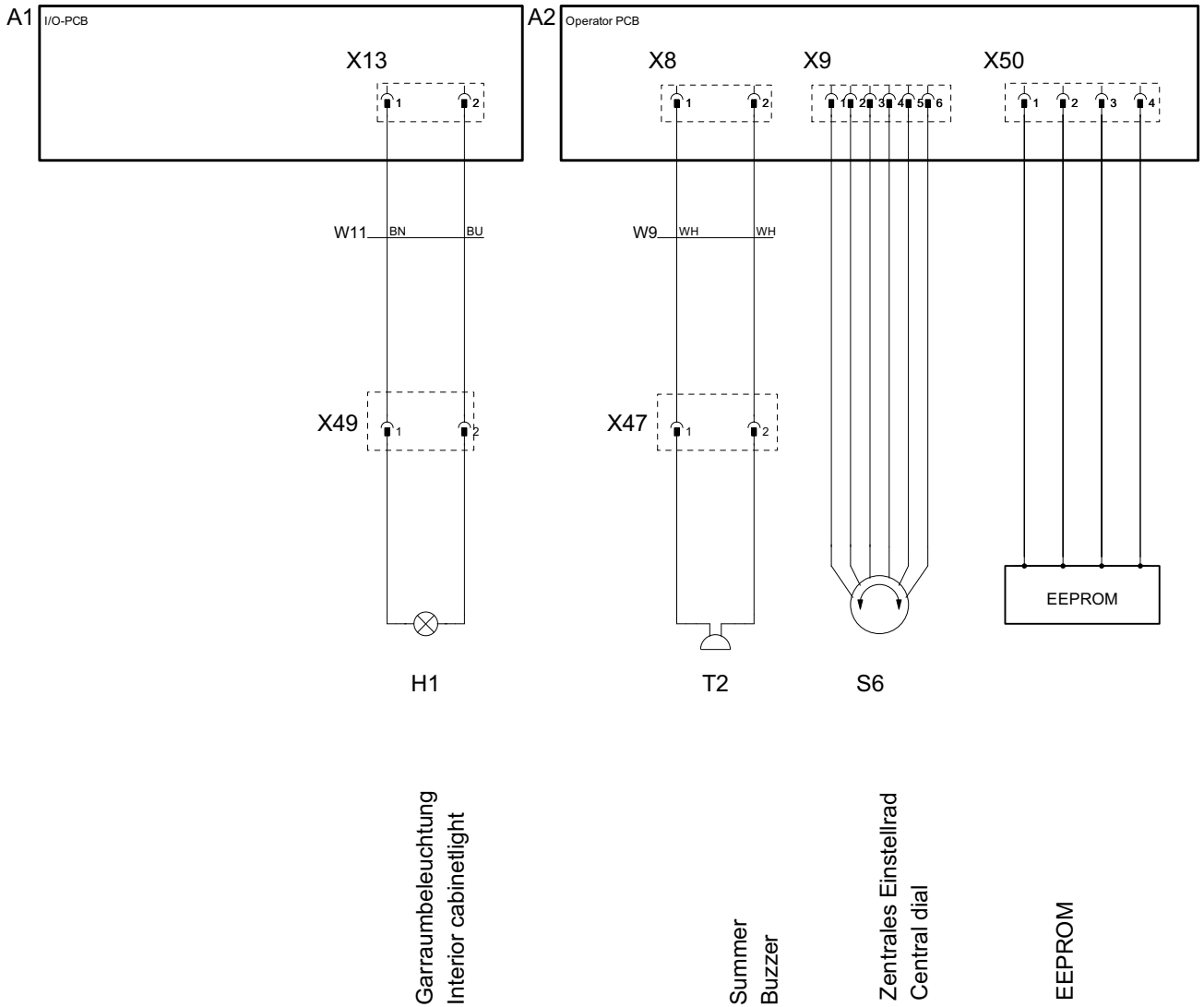
Blink code fam motor
See Training manual page 83

Kühllüfter
Cooling fan

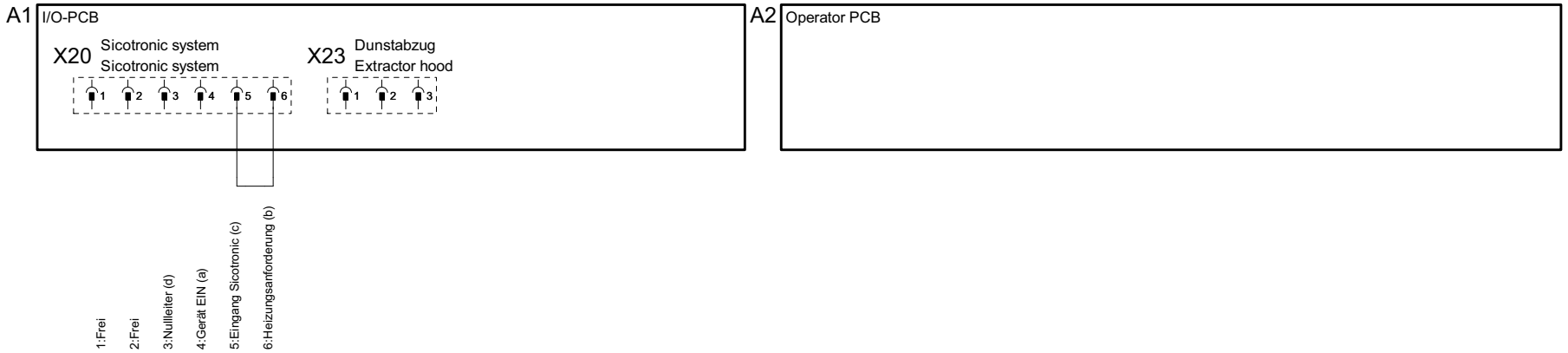
Kühllüfter
Cooling fan

Lüftermotor
Fan motor

76-00003	MODUL 5 Lüftermotor Fan Motor, Cooling Fan	SCC101E	Erstellt von / Created by: PA
Version 0	-171-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 5



76-00003	MODUL 6 Garraumbeleuchtung, Summer, Zentrales Einstellrad, EEPROM	SCC101E	Erstellt von / Created by: PA
Version 0	-172-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004
			Blatt / Page: 6



76-00003	MODUL 7 Option Options	SCC101E	Erstellt von / Created by: PA
Version 0	-173-	3NAC400V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 7

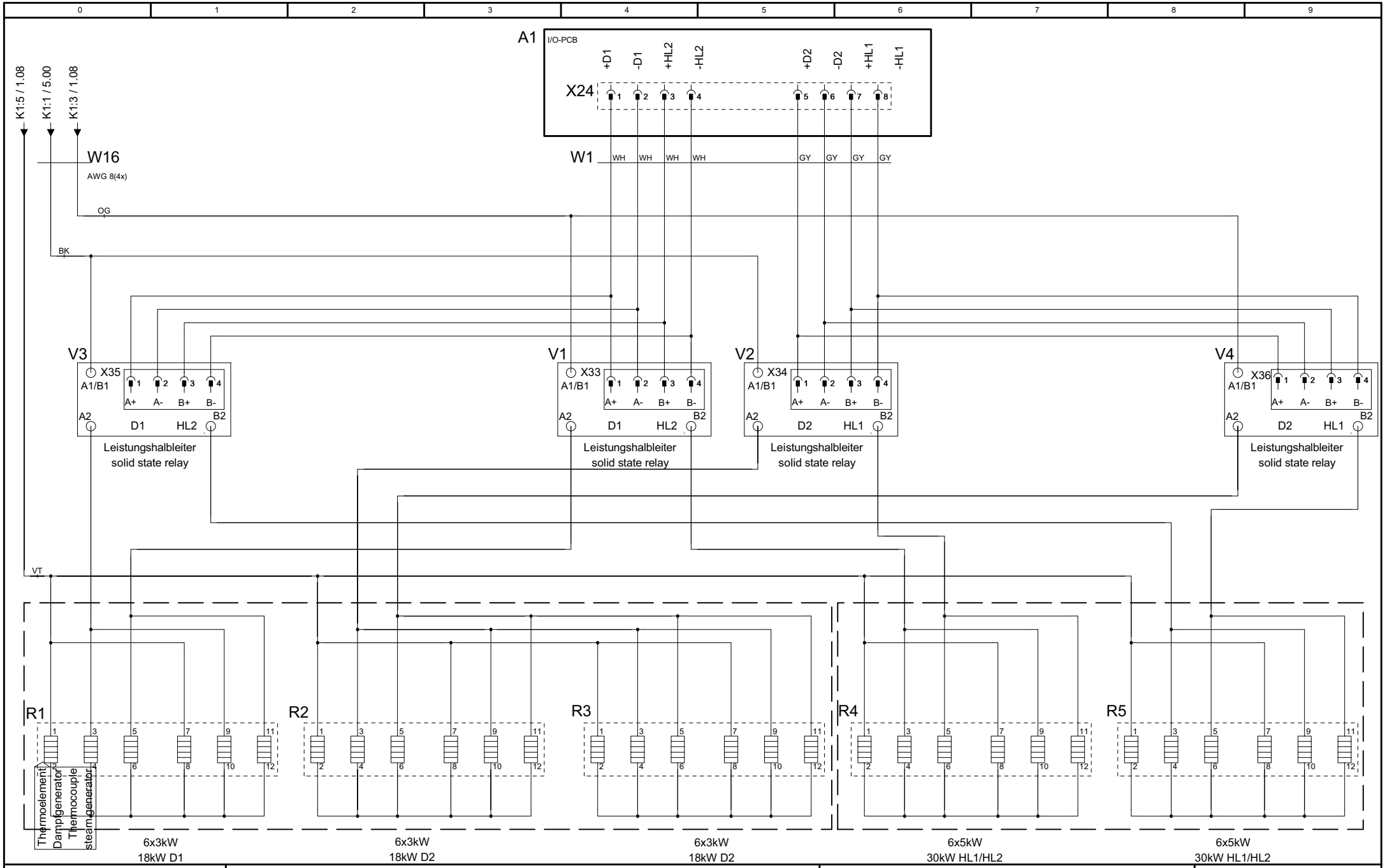
Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**	**Module** **Modul**
A1	40.00.049	I/O-PCB	I/O-PCB	Modul 8
A2	42.00.002	Bedienplatine SCC	Operator PCB SCC	Modul 1
B1	40.00.395	Thermoelement Garraum	Thermocouple interior cabinet	Modul 3
B2	40.00.287	Thermoelement Ablöschung	Thermocouple quenching system	Modul 3
B4	40.00.290	Thermoelement Feuchte	Thermocouple humidity	Modul 3
B5	40.00.291	Thermoelement Dampfgenerator	Thermocouple steam generator	Modul 3
B6	40.01.604	Thermoelement Kerntemperatur SCC	Thermocouple core temperature	Modul 3
F1	4001.0224	Steuersicherung	Control fuse	Modul 1
F2	4001.0224	Steuersicherung	Control fuse	Modul 1
F3	40.01.329	Sicherheitstemp. Begrenzer G135°C/275°F E160°C/320°F	Safety temp. limiter G135°C/275°F E160°C/320°F	Modul 1
F4	40.00.605	Sicherheitstemperaturbegrenzer 360°C/680°F	Safety temperature limiter 360°C/680°F	Modul 1
H1	3024.0201	Halogenbeleuchtung alle	Interior cabinet light	Modul 6
K1	40.01.555	Hauptschütz	Main contactor	Modul 1
M1	40.00.274	Lüftermotor TG u. SG	Fan motor	Modul 5
M11	3101.1008	Kühllüfter 101/102E u. 202/E J/UL	Cooling fan 101/102E and 202/E J/UL only	Modul 5
M3	3101.1010	Klappenmotor SCC	Flap motor	Modul 3
M4	44.00.207	SC-Pumpe	SC-pump	Modul 4
M5	3101.1008	Kühllüfter 61-202E/G	Cooling fan	Modul 5
M6	56.00.185	Clean Jet Pumpe SCC	CleanJet pump	Modul 4
P1	3017.1011	Differenzdrucksensor	Differential pressure sensor	Modul 3
R1	44.00.194	Dampfheizkörper 61-202	Heating element steam 61-202	Modul 2
R2	44.00.534	Dampfheizkörper 61-202	Heating element steam 61-202	Modul 2
R4	40.00.265	Heißluftheizkörper 61-202	Heating element hot air 61-202	Modul 2
S1	TEXT	Ein/Aus Schalter SSC	On/off switch SCC	Modul 1
S11	44.00.211	CDS-Sensor	CDS-sensor	Modul 4
S2	3002.0402	Niveauelektrode	Water level electrode	Modul 3
S3	40.00.335	Türkontaktschalter	Door contact switch	Modul 3
S4	3016.0102	Mikroschalter Feuchtemotor	Micro switch humidity motor	Modul 3
S6	40.00.404	Zentrales Einstellrad	Central dial	Modul 6
T1	40.00.277	Trafo	Transformer	Modul 1
T2	3006.0107	Alarmsummer	Buzzer	Modul 6
V1	40.01.589	Leistungshalbleiter 61-202/E	Solid state relay	Modul 2
V2	40.01.589	Leistungshalbleiter 61-202/E	Solid state relay	Modul 2
X20	40.00.338	Sicotronic-Klemme	Sicotronic system	Modul 7
Y1	50.00.138	Magnetventil Füllen / SCC (Y3) Beschwaden	Solenoid valve filling / SCC (Y3) moistening	Modul 4
Y2	50.00.139	Magnetventil Ablöschung	Solenoid valve guenching system	Modul 4
Z1	40.00.465	Entstörfilter	Electronic noise filter	Modul 1
W0	8801.0136	Anschlusskabel	Power connection cable	Modul 1
W1	40.00.201	Kabel-Ansteuerung I/O PCB - SSR	Cable I/O PCB - SSR	Modul 2

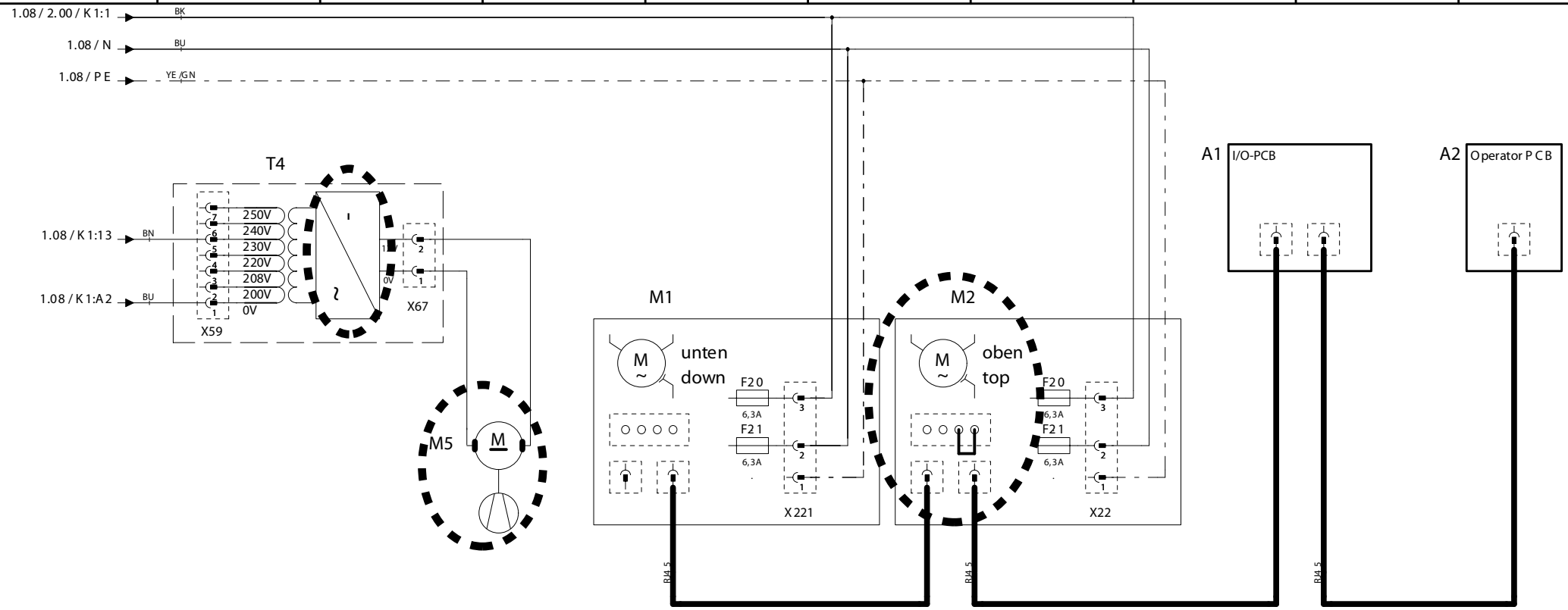
	Änderungsdatum	**2004-04-19 13:22:11**	Name	**SCC101E**	Dokument-Nr.	**78-00111**
	Erzeuger	**SCHD**	Spannung	**3NAC400/415V 50-60Hz**	Version	**0**

Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**	**Module** **Modul**
W10	40.00.210	Kabel:Trafo-Bedienplatine	Cable transformer - operator pcb	Modul 1
W11	40.00.211	Kabel:Halogenbeleuchtung	Cable Halogen light	
W13	40.00.213	Kabel:Trafo - I/O Platine	Cable transformer - I/O pcb	Modul 1
W16	40.00.232	Kabel:Hauptschütz - SSR	Cable Main contactor - SSR	Modul 2
W17	40.01.297	Kabel: Steuerstamm	Cable Control Supply	Modul 1
W2	40.00.202	Kabel: I/O Platine - CDS-Sensor	Cable I/O pcb - CDS-Sensor	Modul 4
W3	40.00.203	Kabel: Platine - Magnetventile	Cable pcb - solenoid valve	Modul 4
W4	40.00.204	Kabel: Platine - SC-Pumpe	Cable pcb - SC-pump	Modul 4
W5	40.00.205	Kabel:Niveauelektrode	Cable water level sensor	Modul 3
W7	40.00.207	Kabel: CPU SCC - Differenzdrucksensor	Cable CPU SCC - Differential pressure sensor	Modul 7
W8	40.00.208	Kabel:Bedienplatine - Klappenmotor	Cable Operator pcb - flap motor	Modul 3
W9	40.00.209	Kabel:Alarmsummer	Cable Buzzer	Modul 6



76-00016	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating -176	SCC202E	Erstellt von / Created by: PA
Version 0		3NAC400V 50-60Hz	Datum / Date: 30.04.2004 Blatt / Page: 2



T4 - 40.00.592 (200-250VAC / 24VDC)
M5 - 40.00.474 (24VDC)

Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

Blink code fam motor
See Training manual page 83

Trafo 12V
Transformer 12V

Kühllüfter
Cooling fan

unten
down
Lüftermotor
Fan motor

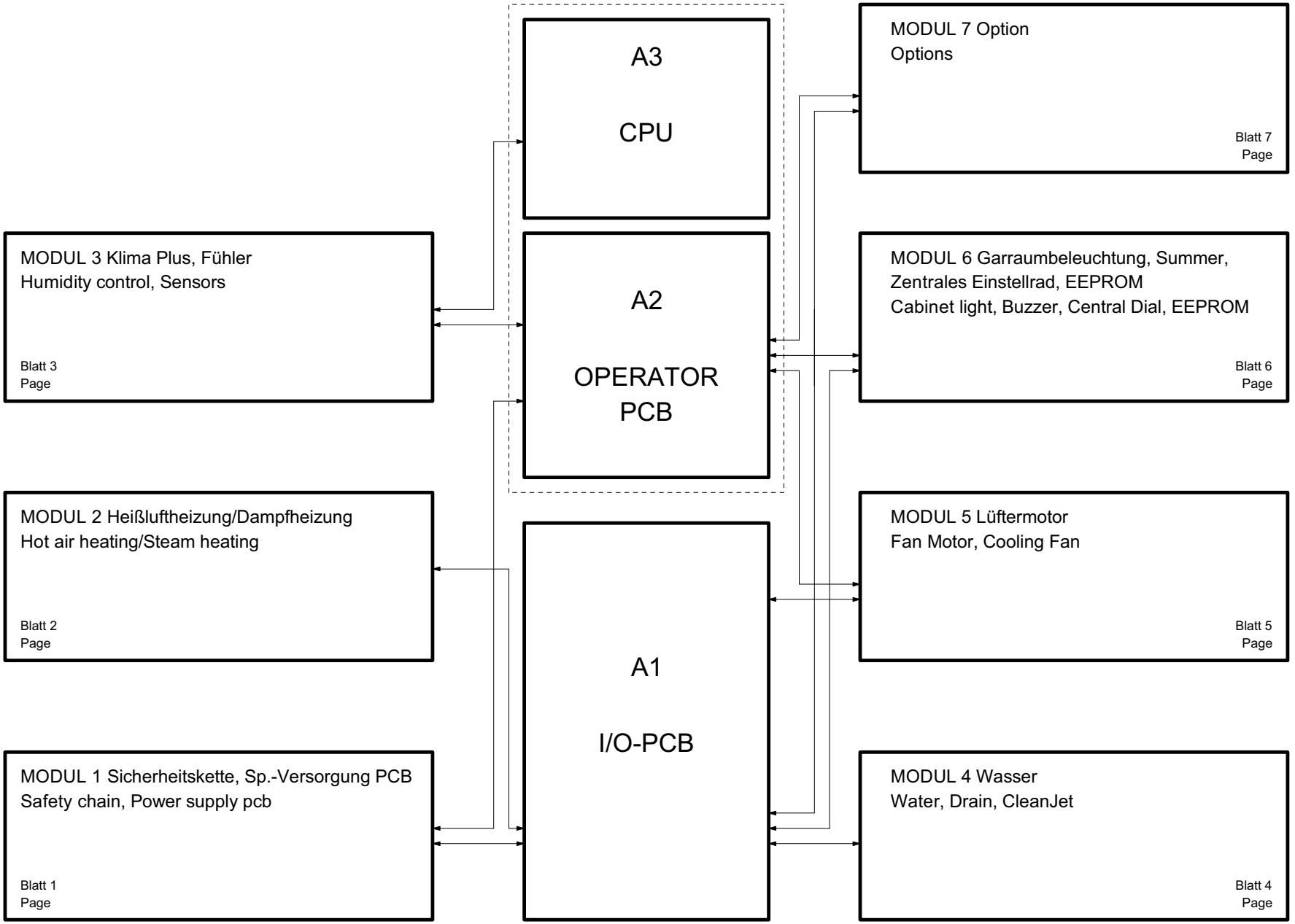
oben
top
Lüftermotor
Fan motor

76-00016	MODUL 5 Lüfter motor Fan Motor, Cooling Fan	SCC202E	Erstellt von / Created by: PA
Version: 0	-177-	3NAC400V 50- 60Hz	Datum / Date: 30.04.2004
			Blatt / Page: 5

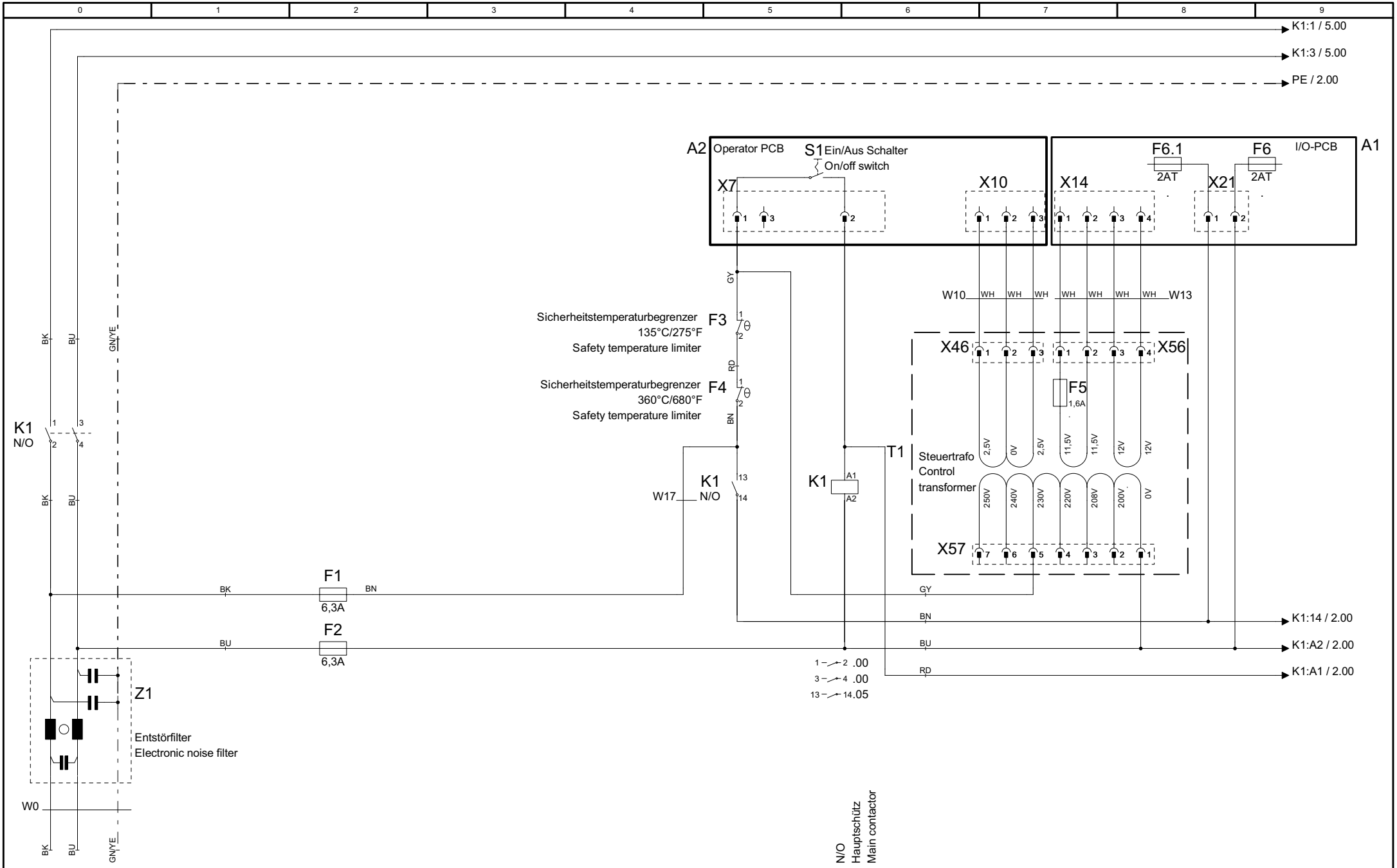
Deckblatt Elektrische Dokumentation, Cover sheet for electrical Documentation

Die Elektrische Dokumentation besteht aus: 1. diesem Deckblatt, 2. dem Schaltplan und 3. der Legende der elektrischen Bauteile
The electric documentation contains: 1. this cover sheet, 2. the wiring diagram and 3. the bill of electrical material (BOM)

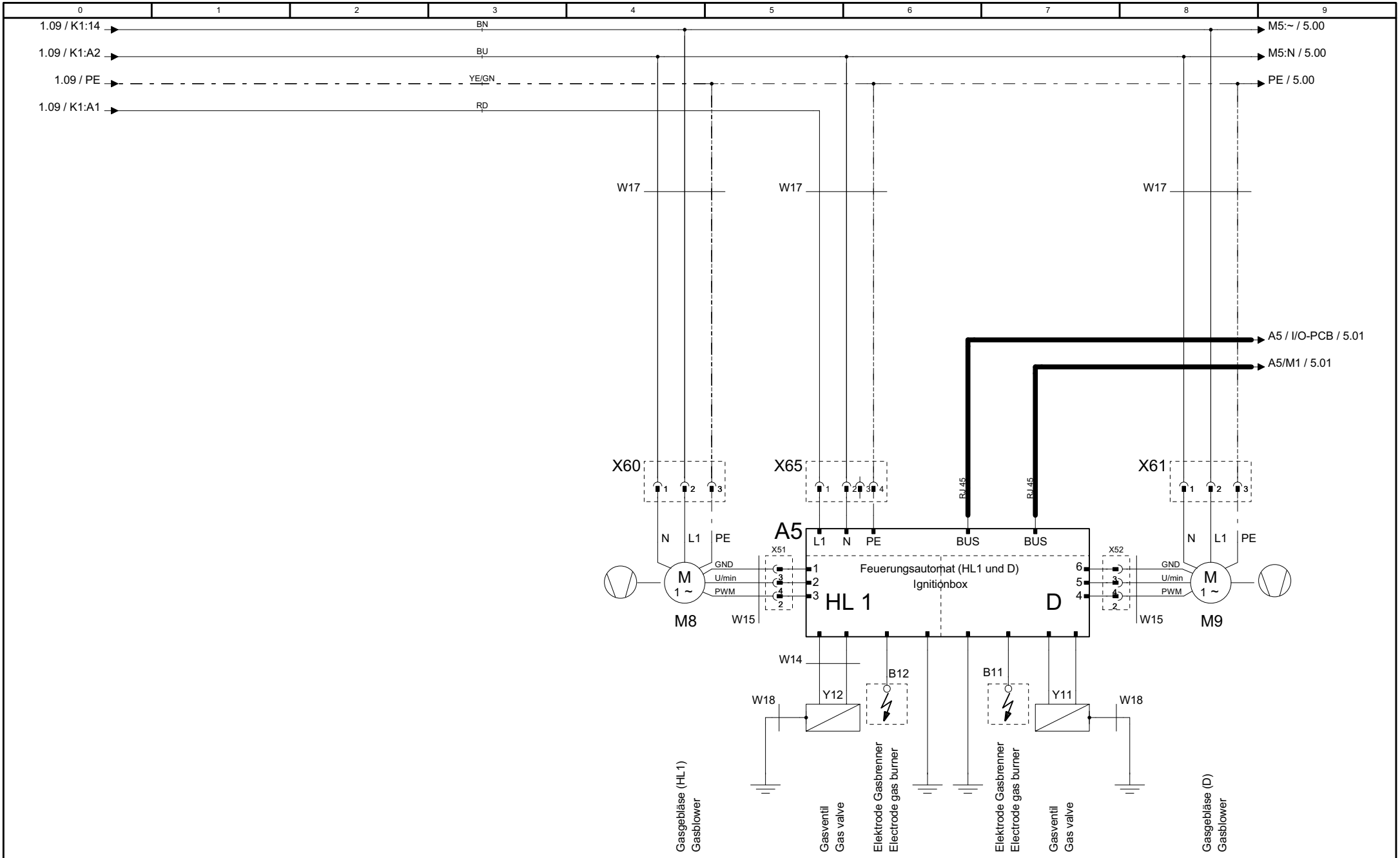
Deckblatt-Nr. **Front Page No.**	75-20008	**Version**	0
Typ / Type	SCC101G		
Schaltplan **Wiring diagram** **Spannung (SPL)** **Voltage**	76-00006 1NAC230V 50-60Hz	**Version**	0
Legende **Legend electr. components**	78-00031	**Version**	0
Geräteserialnr. **Serial number**	G11SE0401	**Version**	0401
Erstellt am **Created at**	04.05.2004 19:19:00	**Ersteller** **Creator**	SCHD
Gültig ab **Valid from**	04.05.2004		



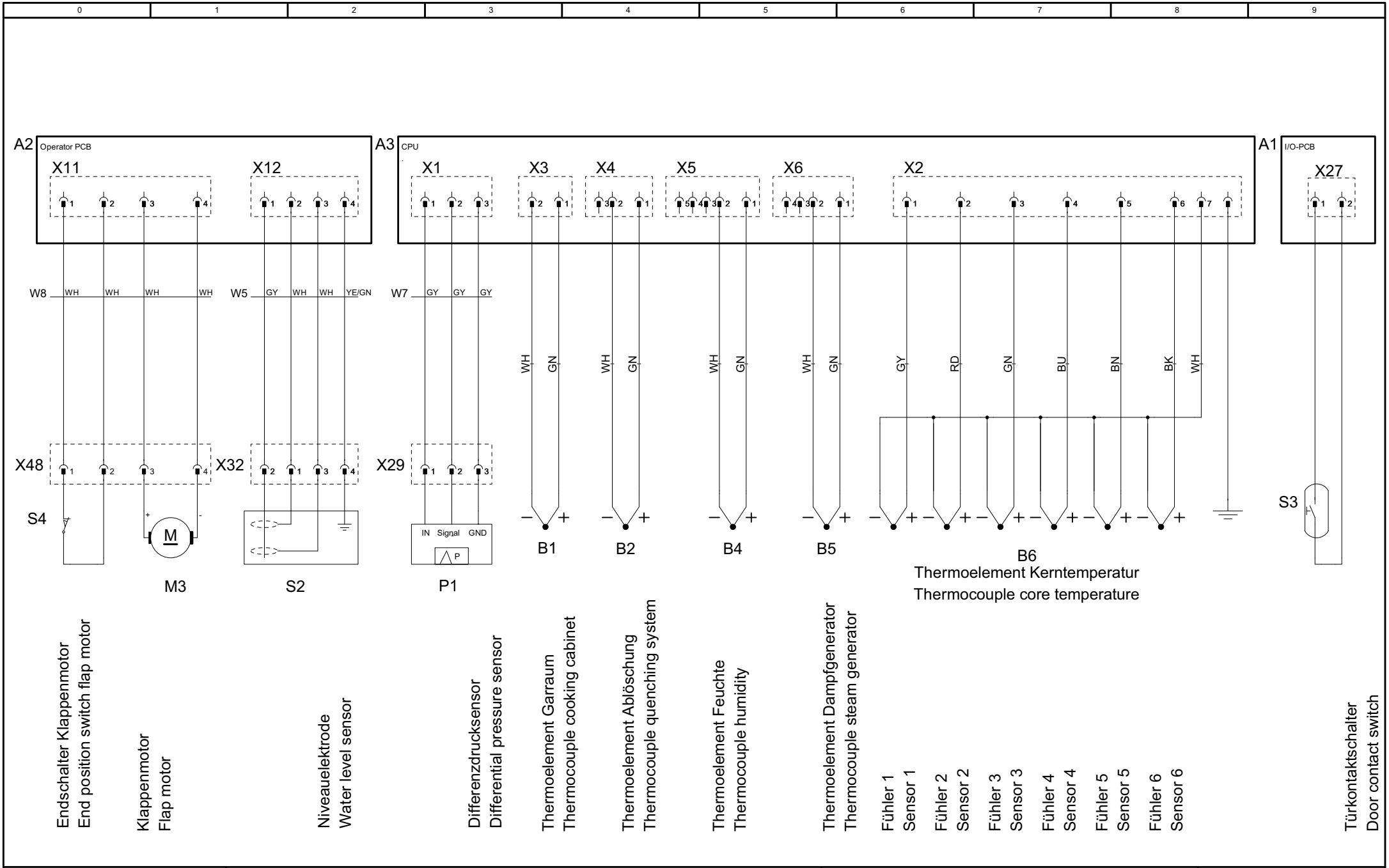
76-00006	Überblick	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-179-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004
			Blatt / Page: 8



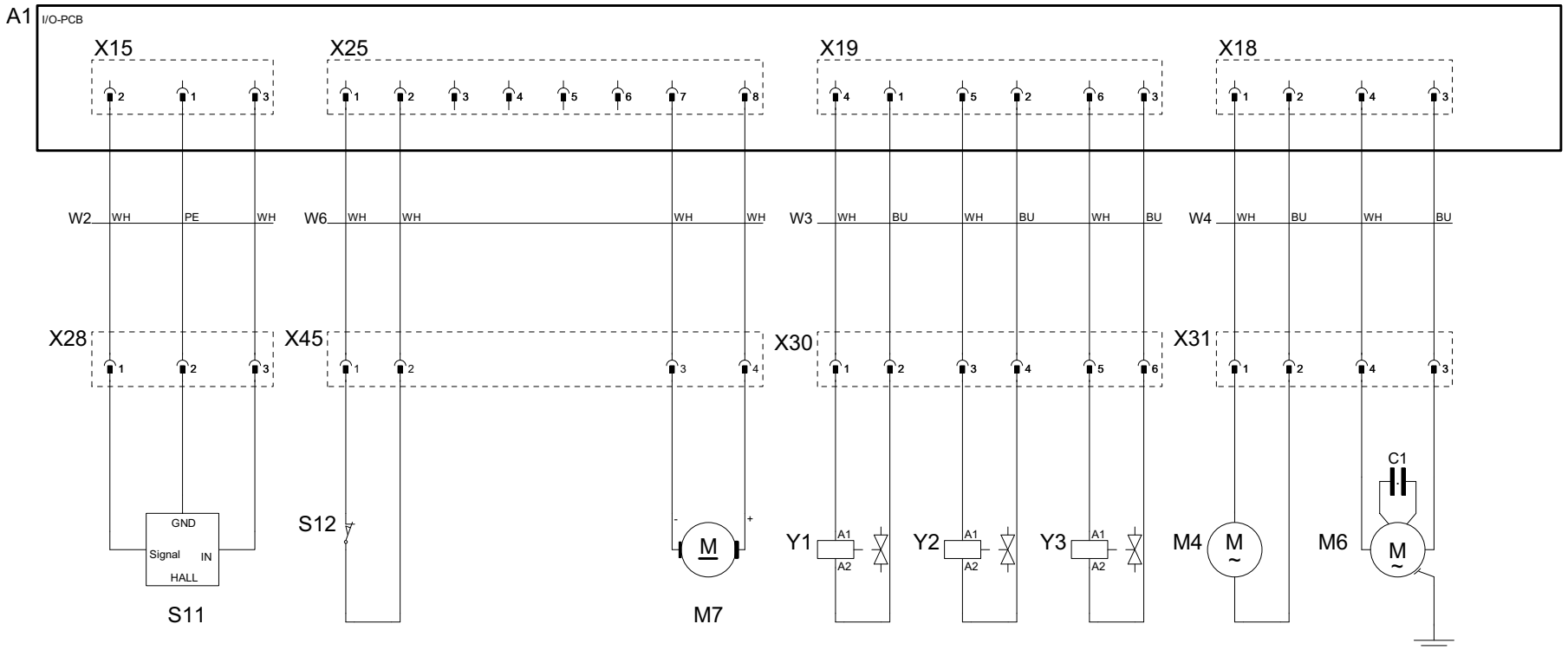
76-00006	MODUL 1 Sicherheitskette, SP.-Versorgung PCB Safety chain, Power supply pcb -180-	SCC 101/102 G	Erstellt von / Created by: PA
Version: 0		1NAC230V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 1



76-00006	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-181-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 2



76-00006	MODUL 3 Klima Plus, Fühler Humidity control, Sensors	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-182-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 3



CDS-Sensor
CDS-sensor

Endschalter Verschlußmotor
End switch drain valve

Verschlußmotor
Drain valve

Magnetventil-Füllen
Solenoid valve filling

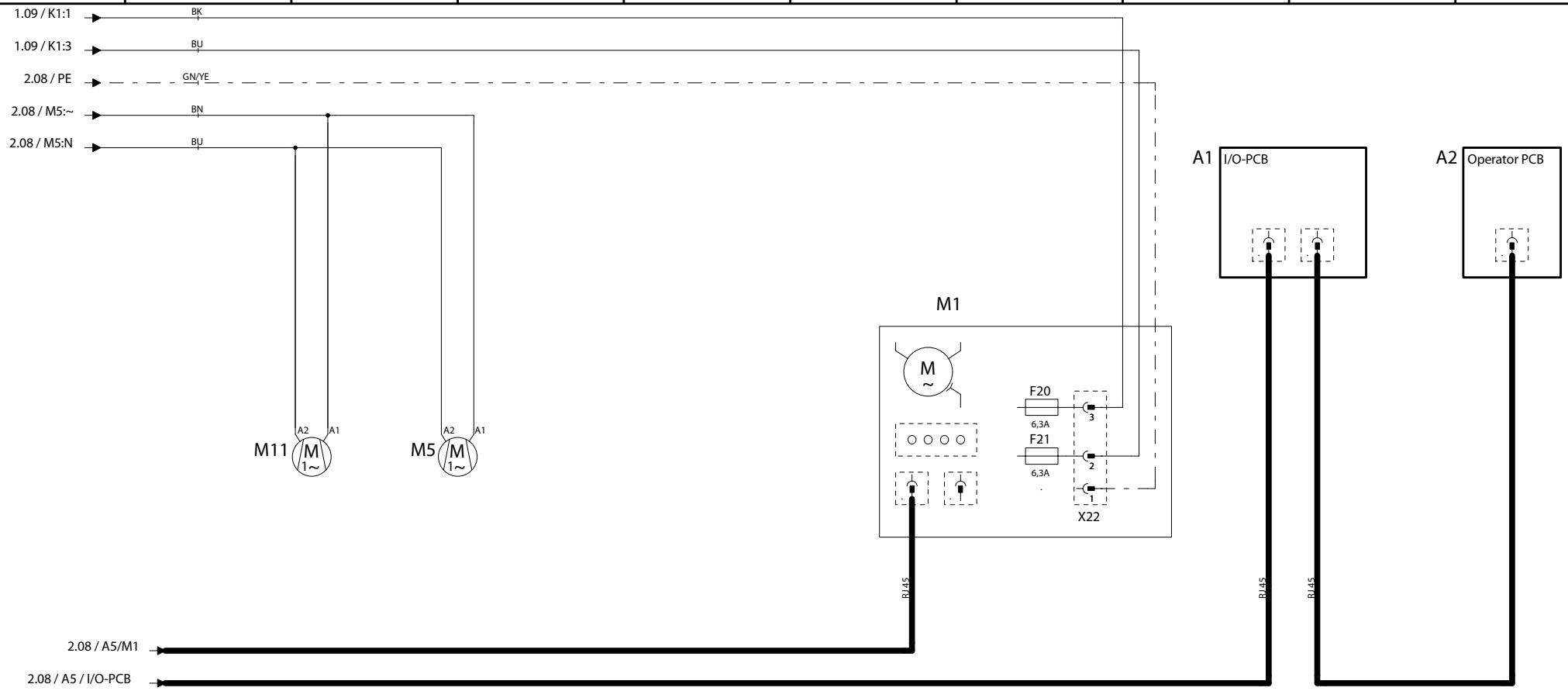
Magnetventil-Ablöschung
Solenoid valve quenching system

Magnetventil-Beschwadung
Solenoid valve moistening

SC-Pumpe
SC-pump

Kondensator C1 2,5µF
Capacitor
Umwälzpumpe Reinigung
Cleanjet circulation pump

76-00006	MODUL 4 Wasser Water, Drain, CleanJet	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-183-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 4



Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

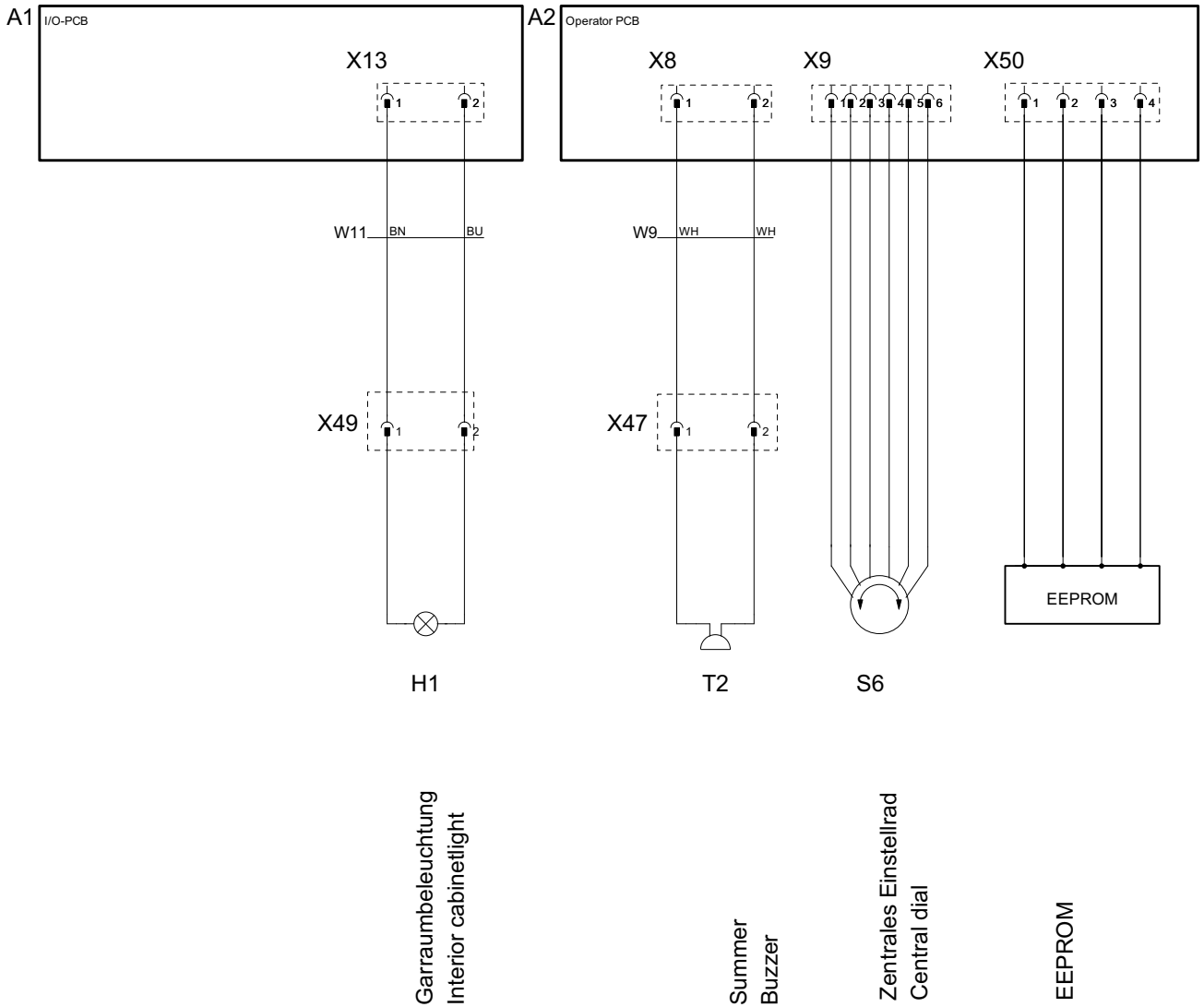
Blink code fam motor
See Training manual page 83

Kühllüfter
Cooling fan

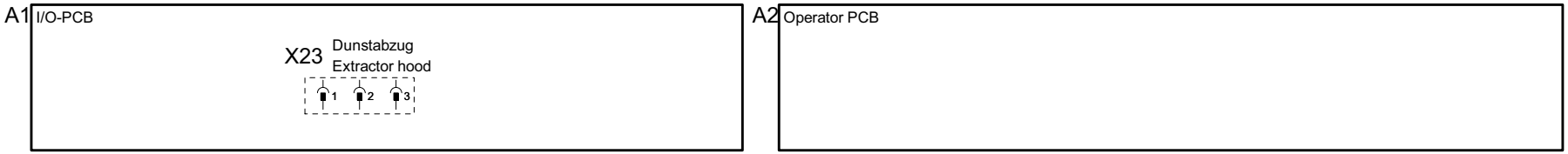
Kühllüfter
Cooling fan

Lüftermotor
Fan motor

76-00006	MODUL 5 Lüftermotor Fan Motor, Cooling Fan	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-184-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 5



76-00006	MODUL 6 Garraumbeleuchtung, Summer, Zentrales Einstellrad, EEPROM	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-185-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004
			Blatt / Page: 6



76-00006	MODUL 7 Option Options	SCC 101/102 G	Erstellt von / Created by: PA
Version 0	-186-	1NAC230V 50-60Hz	Datum / Date: 05.05.2004 Blatt / Page: 7

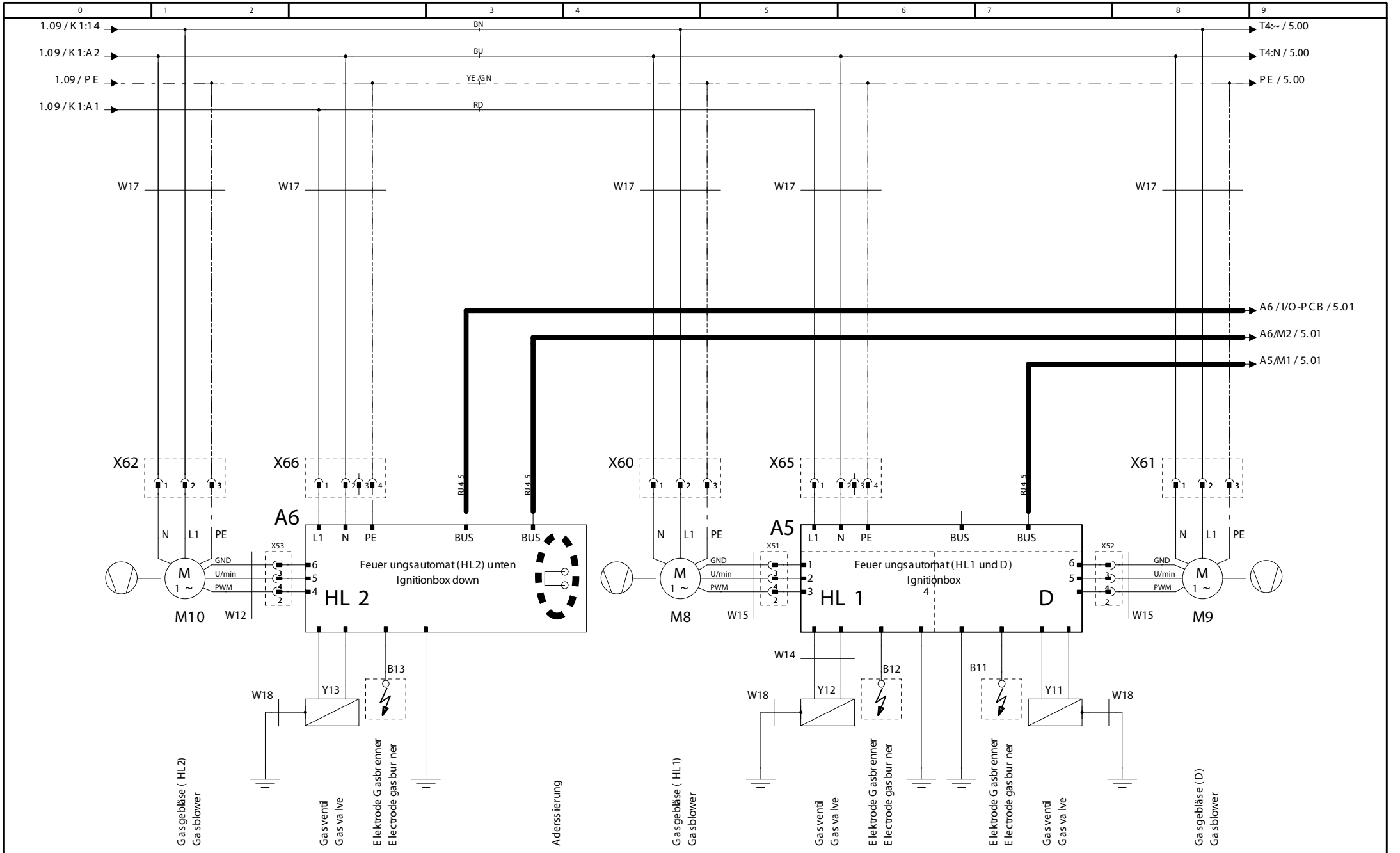
Positionsliste
Bill of material

Name Name	Artikelnr. Item number	Artikelbezeichnung	Item description	Module Modul
A1	40.00.049	I/O-PCB	I/O-PCB	Modul 8
A2	42.00.002	Bedienplatine SCC	Operator PCB SCC	Modul 1
A5	74.00.221	Feuerungsautomat Brenner 61-202	Ignition box	Modul 2
B1	40.01.097	Thermoelement Garraum	Thermocouple interior cabinet	Modul 3
B2	40.00.287	Thermoelement Ablöschung	Thermocouple quenching system	Modul 3
B4	40.00.290	Thermoelement Feuchte	Thermocouple humidity	Modul 3
B5	40.01.095	Thermoelement Dampfgenerator	Thermocouple steam generator	Modul 3
B6	40.01.604	Thermoelement Kerntemperatur SCC	Thermocouple core temperature	Modul 3
F1	4001.0224	Steuersicherung	Control fuse	Modul 1
F2	4001.0224	Steuersicherung	Control fuse	Modul 1
F3	3014.0328	Sicherheitstemp. Begrenzer G135°C/275°F E160°C/320°F	Safety temp. limiter G135°C/275°F E160°C/320°F	Modul 1
F4	40.01.482	Sicherheitstemperaturbegrenzer 360°C/680°F	Safety temperature limiter 360°C/680°F	Modul 1
H1	3024.0201	Halogenbeleuchtung alle	Interior cabinet light	Modul 6
K1	40.00.451	Hauptschütz	Main contactor	Modul 1
M1	40.00.274	Lüftermotor TG u. SG	Fan motor	Modul 5
M11	3101.1008	Kühllüfter 101/102E u. 202/E J/UL	Cooling fan 101/102E and 202/E J/UL only	Modul 5
M3	3101.1010	Klappenmotor SCC	Flap motor	Modul 3
M4	44.00.207	SC-Pumpe	SC-pump	Modul 4
M5	3101.1008	Kühllüfter 61-202E/G	Cooling fan	Modul 5
M6	56.00.185	Clean Jet Pumpe SCC	CleanJet pump	Modul 4
M8	70.00.028	Gasgebläse HL unten	Gasblower Hot Air bottom	Modul 2
M9	70.00.028	Gasgebläse DG	Gasblower Steam	Modul 2
P1	3017.1011	Differenzdrucksensor	Differential pressure sensor	Modul 3
S1	TEXT	Ein/Aus Schalter SSC	On/off switch SCC	Modul 1
S11	44.00.211	CDS-Sensor	CDS-sensor	Modul 4
S2	44.00.287	Niveauelektrode	Water level electrode	Modul 3
S3	40.00.335	Türkontaktschalter	Door contact switch	Modul 3
S4	3016.0102	Mikroschalter Feuchtemotor	Micro switch humidity motor	Modul 3
S6	40.00.404	Zentrales Einstellrad	Central dial	Modul 6
T1	40.00.277	Trafo	Transformer	Modul 1
T2	3006.0107	Alarmsummer	Buzzer	Modul 6
Y1	50.00.138	Magnetventil Füllen / SCC (Y3) Beschwaden	Solenoid valve filling / SCC (Y3) moistening	Modul 4
Y2	50.00.139	Magnetventil Ablöschung	Solenoid valve guenching system	Modul 4
Z1	40.01.483	Entstörfilter	Electronic noise filter	Modul 1
W0	40.01.596	Anschlusskabel	Power connection cable	Modul 1
W10	40.00.210	Kabel:Trafo-Bedienplatine	Cable transformer - operator pcb	Modul 1
W11	40.00.211	Kabel:Halogenbeleuchtung	Cable Halogen light	
W13	40.00.213	Kabel:Trafo - I/O Platine	Cable transformer - I/O pcb	Modul 1
W14	40.00.230	Kabel:Feuerungsautomat - Gasventil	Cable Ignition box - gas valve	Modul 2

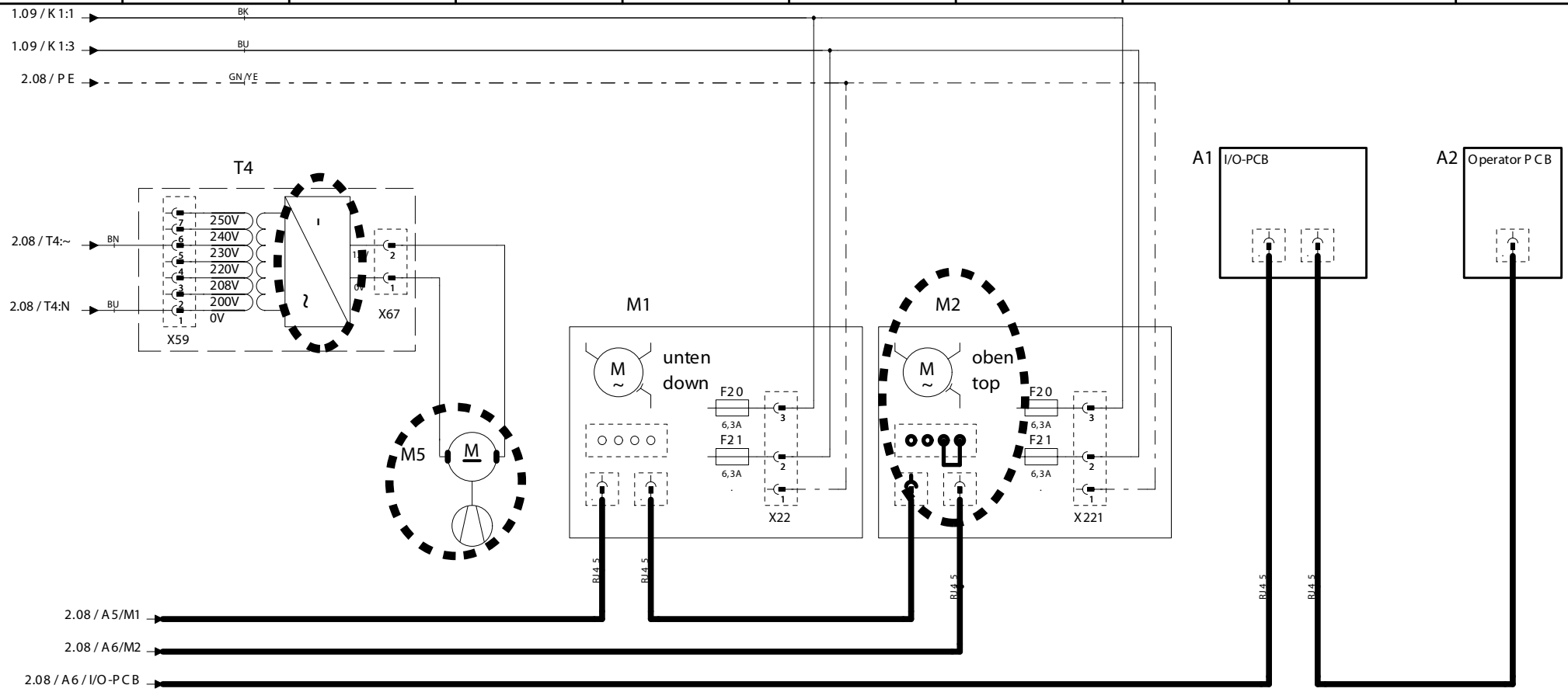
	Änderungsdatum	**2004-04-01 08:28:37**	Name	**SCC101G**	Dokument-Nr.	**78-00031**
	Erzeuger	**SCHD**	Spannung	**1NAC230V 50-60Hz**	Version	**0**

Positionsliste
Bill of material

Name **Name**	**Artikelnr.** **Item number**	**Artikelbezeichnung**	**Item description**	**Module** **Modul**
W15	40.00.215	Kabel:Feuerungsautomat - Gasgebläse	Cable Ignition box - gas blower motor	Modul 2
W17	40.01.300	Kabel: Steuerstamm	Cable Control Supply	Modul 1
W18	40.00.237	Kabel:Erdung Gasventil	Cable ground connection gas valve	Modul 2
W2	40.00.202	Kabel: I/O Platine - CDS-Sensor	Cable I/O pcb - CDS-Sensor	Modul 4
W3	40.00.203	Kabel: Platine - Magnetventile	Cable pcb - solenoid valve	Modul 4
W4	40.00.247	Kabel: Platine - SC-Pumpe	Cable pcb - SC-pump	Modul 4
W5	40.00.205	Kabel:Niveauelektrode	Cable water level sensor	Modul 3
W7	40.00.207	Kabel: CPU SCC - Differenzdrucksensor	Cable CPU SCC - Differential pressure sensor	Modul 7
W8	40.00.208	Kabel:Bedienplatine - Klappenmotor	Cable Operator pcb - flap motor	Modul 3
W9	40.00.209	Kabel:Alarmsummer	Cable Buzzer	Modul 6



76-00051	MODUL 2 Heißluftheizung/Dampfheizung Hot air heating/Steam heating	SCC 201/202 G	Erstellt von / Created by: PA
Version: 0	-189-	1NAC 230V 50- 60Hz	Datum / Date: 30.04.2004
			Blatt / Page: 2



T4 - 40.00.592 (200-250VAC / 24VDC)
M5 - 40.00.474 (24VDC)

Blinkcode Lüftermotor
Siehe Trainingshandbuch Seite 83

Blink code fam motor
See Training manual page 83

12V Trafo

Kühllüfter
Cooling fan

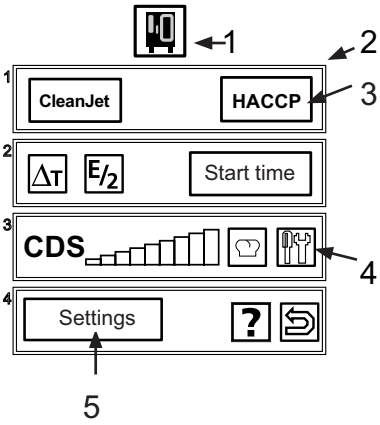
unten
down
Lüftermotor
Fan motor

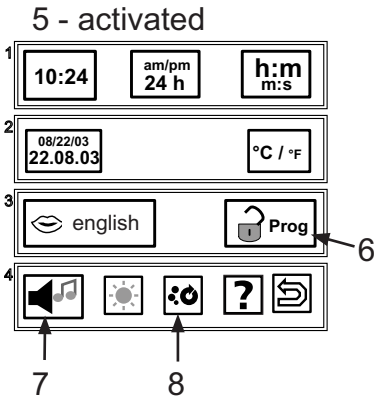
oben
top
Lüftermotor
Fan motor

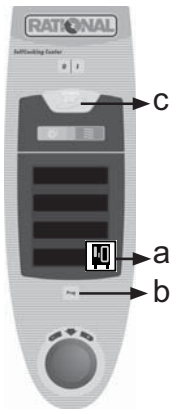
76-00051	MODUL 5 Lüfter motor Fan Motor, Cooling Fan	SCC 201/202 G	Erstellt von / Created by: PA
Version: 0	-190-	1NAC 230V 50- 60Hz	Datum / Date: 30.04.2004
			Blatt / Page: 5

Notes:

SCC Service Reference







	Operating buttons	
1	Function key	
2	Display SCC Functions	
3	HACCP Protocol	- Download
4	Service key	- de-scaling - empty steam generator (with door open) - Display type / software - Download Diagnostic (since 01-07-09)

	Service error code:	
	Service 10	SC-Pump without Function
	Service 11	level electrode (Osmosis water) or check valve above steam generator for leakage
	Service 12	CDS sensor no output signal
	Service 13	change level electrode
	Service 14	Level electrode (Osmosis water)
	Service 16	since 01-07-09, flash new software version first
	Service 17	external EEPROM faulty
	Service 20	thermocouple B1 faulty
	Service 21	micro switch clima control faulty
	Service 22	
	Service 23	SSR steam short circuit
	Service 24	SSR hot air short circuit
	Service 25	CleanJet water circulation faulty - water doesn‘t hit fan wheel - check pump, foreign bodies in water pipe, racks / trolley must be inside cabinet
	Service 26	drain valve closed
	Service 27	drain valve doesn‘t close, CleanJet without function
	Service 28	B5 in steam generator above 180°C (356°F), de-scale steam generator
	Service 29	pcb temperature too high (above 85°C / 185°F); change air filter
	Service 30	humidity control faulty
	Service 31.X	core probe faulty
	Service 32.X	ignition box faulty, change ignition box 0-top; 1-bottom; 2-both
	Service 33.X	4x Reset without function, change ignition box; 1-top; 2-bottom
	Service 34.X	BUS signal error 1-I/O pcb, 2-motor bottom; 4-motor top; 8-ignition box top; 16-ignition box bottom

	User settings (5)	
6	Program Lock	Password: 12345; TTREU
7	Buzzer Loudness and duration	duration setting since 01-07-09
8	CleanJet reminder	Active, when symbol is red

	Enter Service level
	set dip switch "1" on pcb to ON position

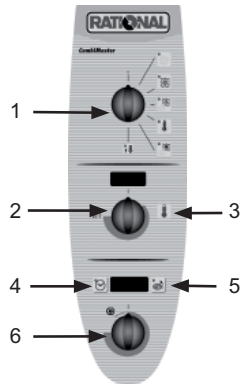
	Show Mode - switch off or on	
	ON	press function key "a" followed by program key "b" and SCC key "c" for 10 seconds until - acoustic signal - Beep and door handle in icon function key "a" shows in red
	OFF	press function key "a" followed by program key "b" and SCC key "c" for 10 seconds until - acoustic signal - Beep and door handle in icon function key "a" shows in blue

	Gas-settings - values	
	Dyn. pressure LPG	27-57 mbar; 2,7-5,7 kPa
	Dyn. pressure natural gas	18-25 mbar; 1,8-2,5 kPa
	CO_2 max LPG (G30) 3BP	10,4% +/- 0,2% for type 61-202
	CO_2 max LPG (G31) 3P	11,1% +/- 0,2% for type 61-202
	CO_2 max natural gas H (G20)	9,4% +/- 0,2% for type 61-201 9,5% +/- 0,2% for type 202
	CO_2 max natural gas L (G25)	9,3% +/- 0,2% for type 61-201 9,4% +/- 0,2% for type 202

	Abort CleanJet
	switch unit off and on again

	Abort de-scaling program
	before filling de-scaling liquid - use "BACK" arrow
	after filling de-scaler into steam generator - switch unit off and on again - press ABORT key - remaining time will be adjusted automatically - switch unit off and on again - press ABORT key - time will be adjusted automatically 2x - use steam mode for 15 min. and rinse interior cabinet

CM Service Reference



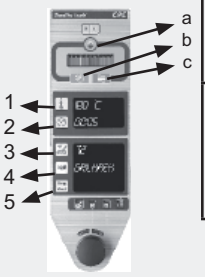
	Key code CM (SCC line)
a:	Cleaning program
	select Cool Down with "1" press key "5" for 10 sec. „CLEn“ is shown in temperature display press key "4" 1x;
b:	De-scaling program
	select Cool Down with "1" press key "5" for 10 sec. „CLEn“ is shown in temperature display select "CALC“ with "6" press key "4" 1x;
c:	empty steam generator
	select Cool Down with "1" press key "5" for 10 sec. „CLEn“ is shown in temperature display select "SC“ with "6" press key "4" 1x;
d:	select °C - °F
	select any cooking mode press key "4" and "5" for 10 seconds

	Enter Service level (Diagnostic, Settings, Running times)
	Set dip switch 1 on pcb to "1" position

	Enter function test
	Set dip switch 3 on pcb to "1" position

	Diagnostic program	
dP1	Software version	
dP2	B1 cabinet sensor	
dP3	B3 core probe sensor	
dP4	B2 quenching sensor	
dP5	B5 sensor steam generator	
dP6	PCB temperature	must be below 75°C (167°F)
dP7	S3 door contact	o - open; 1 - closed
dP8	S2 level electrode	0 - no water; 1 - ok
dP9	steam element energised	0 ; 1=50%; 2=100%
dP10	hot air element energised	0 ; 1=50%; 2=100%
dP11	rpm fan motor top	
dP12	rpm fan motor botttom	
dP13	Sicotronic energy optimising	
dP14		
dP15	Unit type and size	
dP16	Gas - Flame current steam	normal: 4,5 - 5,5µA
dP17	Gas - Flame current hot air top	normal: 4,5 - 5,5µA
dP18	Gas - Flame current hot air bottom	normal: 4,5 - 5,5µA

	Error code	
Cabinet display	Time display	
H20	OPEn	open water tap
CHnG	PoL	change polarity of mains supply
E1		External EEPROM data error
E2		heating blocked by energy optimising
E3		B1 cabinet sensor defective
E4		B2 quenching sensor defective
E5		B3 core probe sensor defective
E6		B5 steam generator sensor defective
E7		Thermo sensor on pcb defective
E8		potentiometer cabinet temp. defective
E9		potentiometer time / core probe defective
E10		External EEPROM defective
E11		mode switch defective
E12	1Co 1St	fan motor bottom Bus error (LED shows?) fan motor bottom defective
E12	2Co 2St	fan motor top Bus error (LED shows?) fan motor top defective
E13		M4 SC-pump defective or blocked
E14		filling solenoid defective / sieve blocked
E15		pcb temp. above >85°C (185°F), change air filter
E16		B5 steam generator sensor above 180°C (356°F), de-scale steam generator
E17		B5 steam gen. sensor below -5°C (23°F)
E18		B1 cab. sensor above 340°C (640°F) (SSR?)
E20	1 2	Ignition box top bus error Ignition box top bus error
E21	1xx 2xx 3xx	1xx - Steam, 2xx - Hot air top 3xx - Hot air bottom Ignition box defective - change box
E22	1xx 2xx 3xx	1xx - Steam, 2xx - Hot air top 3xx - Hot air bottom Ignition electrode, Ignition box, cable
E24		flash new software first

CPC - Help		
	Total reset1:	press key "3"+"4"+"5" and switch off at the same time (erases all customer programs)
	Total reset 2: (memory reset)	activate Program lock first; press key "a"+"b"+"c" and switch off at the same time; (erases all customer programs) humidity calibration is needed

Diagnostic mode:	select any mode; press 4 sec. keys: "1"+"3"+"4"
Function test:	select last position in diagnostic mode, press key "5" and select at same time 11:11 in time display, release key "5" and press it again
Abort CleanJet	insert CleanJet arm , press keys: "1"+"2"+"3" until display: X-*-* shows; press key "4" 10 seconds unitl display "CleanJet Aktive"
Service 1	Steam generator pump without function / blocked
Service 5, 6	insert CJ arm, open and close door; press keys "1"+"2"+"4"
Calccheck1	check level electrode and water leakage
Calccheck 2,3,4	check level electrode, CDS sensor, CDS relais

RATIONAL Contact Germany

RATIONAL-Service:
Fax: +49 (0)8191-327397
e-mail: service@rational-online.de
web: www.rational-ag.com

Spare part order:
Fax: +49 (0)8191-327408
e-mail: ersatzteile@rational-online.de

RATIONAL- Chef Line:
Telefon: +49 (0)8191-327300

Edition 09-2007

RATIONAL AG
Tel: ++ 49-81 91-32 70
Fax: ++ 49-81 91-2 17 35

RATIONAL UK
Tel: ++ 44-15 82-48 03 88
Fax: ++ 44-15 82-48 50 01
E-mail: rational@rational-uk.co.uk

RATIONAL Ibérica Cooking Systems S.L.
Tel: ++ 34-93-475 17 50
Fax: ++ 34-93-475 17 57
E-mail: rational@rationaliberica.com

RATIONAL Polska
Tel: ++ 48-22-8 64 93 26
Fax: ++ 48-22-8 64 93 28
E-mail: rational@medianet.pl

RATIONAL Scandinavia
Tel: ++ 46-46-23 53 70
Fax: ++ 46-46-23 53 79
E-mail: info@rationalgmbh.se

RATIONAL Türkei
Tel: ++ 90-2 16-4 14 51 37
Fax: ++ 90-2 16-4 14 72 88
E-mail: rational.ag@turk.net

RATIONAL Cooking Systems
Tel: ++ 1-8 47-2 73-50 00
Fax: ++ 1-8 47-7 55 95 83
E-mail: info@rationalusa.com

RATIONAL Canada
Tel: ++ 1-90 58 56 64 97
Fax: ++ 1-90 58 56 22 80
E-mail: postmaster@rationalcanada:com

RATIONAL Schweiz
Tel: ++ 41-62-7 97 34 44
Fax: ++ 41-62-7 97 34 45
E-mail: cpc@rationalag.ch

RATIONAL Italia
Tel: ++ 39-0-41-5 95-19 09
Fax: ++ 39-0-41-5 95-18 45
E-mail: rationalitalia@tin.it

RATIONAL Shanghai
Tel: ++ 86-21-64 73-74 73
Fax: ++ 86-21-64 73-74 54
E-mail: rational@public3.sta.net.cn

RATIONAL Korea
Tel: ++ 82-2-468-45 59
Fax: ++ 82-2-468-45 92
E-mail:
rational@rationalkorea.co.kr

RATIONAL Japan
Tel: ++ 81-3-54 90-72 67
Fax: ++ 81-3-54 90-37 31
E-mail: rational@gol.com

RATIONAL Nederland
Tel: ++ 31-5 46-54 60 00
Fax: ++ 31-5 46-54 60 99
E-mail: info@rational.nl

RATIONAL Slovenien
SLORATIONAL d.o.o.
Tel.: ++386-2-8821900
Fax.: ++386-2-8821901
E-mail: slorational@siol.net

RATIONAL AG Representative Office Russia
Kutuzovskiy prospekt, 36, bld. 3, entr.6
Moscow
Tel : +7 495 5043483
Fax: +7 495 9807230

RATIONAL
...denn der Unterschied liegt im Detail!

RATIONAL AG
Iglinger Straße 62
D- 86899 Landsberg a. Lech
Tel.: ++ 49 - 81 91/ 32 70
Fax: ++ 49 - 81 91/ 2 17 35
www.rational-ag.com

80.51.033 Edition 09-2007